FURTHER OBSERVATIONS ON SOME LITTLE KNOWN TROPICAL AND SUBTROPICAL DISEASES INTERNAL SURGICAL AND CUTANEOUS

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In a paper published in the Anais do Instituto de Medicina Tropical de Lisboa Vo vi December 1949 I gave brief accounts of some diseases which have so far attracted little attention owing probably to the fact that most of them may be considered minor ones although at times causing great discomfort to the sufferer and also owing to the fact that their descriptions were generally published in local medical journals with scanty circulation I propose in this paper to treat further the subject dealing also with a few diseases which cannot be considered tropical and discussing also some little known clinical symptoms and signs and some little known methods of treatment

For purposes of convenience the subject will be treated under the following headings (1) Climatic Disea es (2) Fevers (3) Internal Diseases (4) Diseases of the Genito Urinary System (5) Disea es of the Organs of Special Sense (6) Surgical Diseases (7) Diseases of the Skin

I CLIMATIC DISEASES

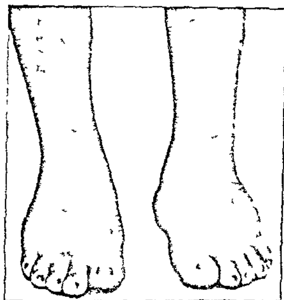
«ADEN ŒDEMA»

(Red Sea Œdema Heat Œdema)

The term Aden Œdema or Red Sea Œdema is a popular term used to denote an oedematous swelling of the feet and legs which is extremely common among passengers on steamers plying to India and the Far East The condition develops very rapidly as soon as the boat reaches the southern portion of the Red Sea hence the term Aden Œdema or Red Sea Œdema The feet and legs become somewhat swollen and slight pitting on pressure may be provoked there may be some feeling of discomfort and larger boots and shoes may have to be worn The general health remains good the urine is normal and the reflexes are not altered This condition often puzzles young ship s doctors during their first trip to the tropics The old generation of newly appointed ship s doctors generally suspected heart disease or renal disease The younger generation of ship s doctors who have attended courses of tropical medicine in Europe before being appointed often suspect incipient beri beri and other avitaminic conditions

Aden Œdema and Red Sea Œdema is not limited to the Red Sea and Indian Ocean It may develop in many other parts of the tropical zone bots on sea and land It may also occur in the temperate zone during a severe heat wave Some years ago while in London during a particularly severe heat wave in the summer I was consulted by three patients — women — complaining of great swelling of the feet and legs with a feeling of discomfort slight pain and heaviness The general condition of health was good there was no fever The blood and urine were normal There was no history or sign of varicose veins In one case the swelling was truly enormous and the first impression on seeing the patient was tha she was affected with elephantiasis glabra The condition had appeared very rapidly two days after the beginning of the heat wave On pressure there was some pitting although not very marked As soon as the heat wave was over the swelling disappeared rapidly and the leg became normal in size Unfortunately the lady refused to have photographs

taken Heat œdema is easily differentiated from œdema of renal and cardiac origin by the absence of albumin in the urine and by the examination of the heart being negative It can readily be differentiated from the œdema found in incipient beri beri by the history by the excellent general health by the deep reflexes being normal (in incipient beri beri the reflexes are increased while later on they



A case of Aden Œdema

are lost) and by the fact that it disapp ars as soon as the weather becomes cooler or if the patient is placed in a conditioned air room. In women it must be differentiated from endocrine pseudo œdema or endocrenic solid œdema not rarely found in ca es of thyroid and ovarian disturbances In these cases there is no pitting on pressure the swelling is often more marked just before the menstrual periods and if these are delayed the swelling becomes much worse Some years ago I attended a young woman sufferer in whom the menstrual periods had been absent for about three years The swelling

of the ankles disappeared completely when menstrual function became normal

Aden Œdema (Heat Œdema) must be differentiated from the oedematous condition of the legs occasionally developing after an individual especially a woman has exposed her legs for some time to the sun In these cases the skin is reddened and later pigmentation follows the condition being in reality a form of dermatitis solaris

«PES DOLOROSUS»

(Pes dolorosus mitis)

I first noticed this condition in people generally women of northern extraction re iding in Rome I have found it also in Nor thern Egypt and Lybia but it appears to be rare in countries situated in the true tropical zone The patient complains of severe burning and tenderness and a feeling of swelling of the feet She often descri bes the condition as «fever of the feet» and says she has frequently to kick off her shoes The condition is aggravated by *walking* and exercise though it is not caused by it since it is often present on getting up from bed in the morning The objective examination shows very little if anything abnormal As a rule there is no diffuse redness and the arteries are not throbbing At times however the whole foot particularly the instep has a slightly swollen *appearance* although usually no pitting is produced on pressure There is no *fever* and the general health is not affected A change to England or to the mountains causes a rapidé disappearance of the symptoms When the patient is unable to take a change I have found warm foot baths using the following powder very beneficial *menthol grm* 0 30 methyl salicylate grm 0 75 aluminis grm 100 boracis grm 100 Two heaped up teaspoonsful in a basinful of warm water The condition *has to* be differentiated from erythromelalgia Erythromelalgia or red neu ralgia is a somewhat rare condition it is commoner in males *than in* females the pain is intense particularly when the limb hangs down but disappears on rest The affected parts *are* bright red with throbbing arteries and enlarged veins

Pes doloro us is to be differentiated also from the so called «Prisoners camp foot» (also known as «Electric foot» «Malnutri

tion foot» and «Starvation foot») a much more serious condition due in all probability to prolonged scanty diet with lack of proteins fats and vitamins common during the last war in prisoners camps in the Far East In this last condition the pain is excruciating especially at night and the patient remains awake the whole night continuously rubbing his feet or placing them in cold water to get some slight relief

«CACOPHORIA TROPICALIS

The term «euphoria» is often used to denote the feeling of «bien etre» usually experienced when all the organs and systems of the body are functioning at their best The term «cacophoria» (from the Greek kakos — ill bad) might be used to indicate the opposite condition so common in the tropics even among people who are apparently healthy and who do not commit excesses in food and drink or in other ways

One feels constantly tired and below par and everything is an effort This feeling which is particularly marked in the morning on rising and which lasts for several hours or even the whole day is often described by the old Indian residents in the popular and well known expression «I m feeling like a worm» The condition differs from the many forms of minor neurasthenic complaints found in the tropics the principal symptoms are bodily fatigue mental lassitude and principally lack of the sense of complete health and well being one does not feel particularly «nervy» or irritable

The condition is probably of endocrinic origin the climate no doubt having a much greater influence on the endocrine glands than is generally supposed The best treatment is of course a trip to Europe but this seldom being possible frequent changes to some hill station are to be recommended In cases where such changes cannot be carried out a tonic containing nux vomica and hypophosphites or glycerophosphates may be given though the results are seldom very satisfactory In some cases glandular extracts principally testicular and suprarenal and multiple vitamins may be tried but as a rule the results are not brilliant

«MORBUS BOREAE»
(Syndromes due to certain winds)

Different winds produce different effects on man and physio logically they may be separated roughly into two groups (a) with stimulative action e g tramontano and (b) with depressing action e g sirocco Certain local winds in the tropics and subtropics may give in some individuals well defined groups of symptoms almost amounting to true clinical entities I may mention the ghibli syndrome and the harmattan syndrome

Ghibli syndrome (Ghiblitis) — The ghibli is a violent south or southeast wind blowing into Tripoli (Lybia) from the desert and carrying with it a quantity of sand The effects have been studied by Onorato (1924) and more recently by me (1940 43) Most peopls suffer but little from it except perhaps some slight discomfort but certain individuals manifest serious symptoms there is great ner nousness and irritability often accompanied by sleeplessness head ache and neuralgias the eyes ache and the conjunctivas are irritated and there may be photophobia and lachrymation There is a feeling of general malaise with loss of appetite and disinclination to work and some individuals have actually to rest in bed and be given bro mides or luminal

Harmattan syndrome — The harmattan is a hot easterly wind coming from the Sahara Desert and carrying dust far out into the Atlantic In the months of November to March this wind meets with the north east trade wind in its most southerly position with the result that it is deflected southwards down the west coast of Africa It is a very dry wind and consequently extracts moisture from eve rything it comes across furniture creaks and groans in a most super natural manner Human beings feel their skin dry and hard in some individuals a somewhat serious syndrome develops characterized by excessive dryness of the skin with formation of deep fissures bleeding from the nose and lips and severe general malaise

Wren has graphically described the Harmattan as «that terrible wind that carries the Sahara Desert a hundred miles to sea not so

much as a sand storm but as a mist or fog of dust fine as flour filling the eyes the lungs the pores of the skin the nose and throat getting into locks of rifles the works of watches and cameras defiling water food and everything else rendering life a burden and a curse»

The Khamsin — The khamsin or khamseen is a dust laden wind which blows in Egypt usually for 3 or 6 or 9 days a time during a period of 50 days (khamsin means 50) about Easter time It is very disagreeable especially when associated as it often is with high air temperatures when it may produce pathological changes in persons in poor health living in places unsuitable for bearing heat such as railway trains

The Sirocco (Italian *scirocco)* — The sirocco is a south-east wind with a high temperature which coming from the high land of North Africa descends to the Mediterraneum and may reach Malta and some parts of Italy It is considered to be very enervating Certain authorities believe this wind to be of the nature of the foehn (see below)

The Solano — The solano is a south easterly wind blowing from the Sahara into Spain

Pamperos — These are the south westerly winds of Brazil Europeans have altered the significance of the name to squally cyclonic winds in the same vicinity

The Foehn — Though essentially a temperate or cool climate wind still the foehn exists in the tropics The foehn is found in its home Switzerland, as a warm dry wind which blows with great violence downwards from the crest of the Alps and has marked effects upon man and animals having a depressing effect upon the mind and the nervous system It was thought at one time that this wind came from the Sahara but all evidence is against this and the present view is that it is a local wind which is produced bè a high south east and a low north west pressure and attains its high temperature as well as its dryness in its descent from the summits of the Alps on their northern side and less typical on the southern aspect when the pressure is high in the north west and is low in the south-east.

LAND WIND

In every tropical country near the sea one hears a great deal of the «land wind» During the day the land becomes heated by the sun and causes the air to rise thus lessening the pressure and drawing

the air from the sea causing a sea breeze which is of course very humid During the night moreover by terrestial radiation the land (as a rule is dry an has a deleterious effect on men and animals by) becomes cooler than the sea and constitutes the land wind The wind extracting moisture and abruptly cooling the body and thereby lowering the power of resistance to disease Hence the complaints made by old residents about the land breeze as giving muscular



A sand storm approaching Khartoum (Sudan)
(Courtesy of G W Morhig)

rheumatism and «chills» On the other hand newcomers delight in them because they are so cool

«SAND STORMS»

Any of the winds mentioned except the land wind which is too mild may give rise to sand storms which cause great discomfort and may at times be dangerous

Sand storms occur in several parts of Africa especially the Sudan and Lower Egypt they also occur in certain parts of North America as for instance in Colorado

American writers have described as deadly some sand storms occurring in Kansas Colorado New Mexico Oklahoma and Texas The sun is completely blotted out and it is as dark as midnight Traffic is stopped all airoplanes are

grounded schools are closed because the ch ldren could not reach their classes without choking To anyone stumbling and falling on the g ound there is danger of being suffocated by the dust

«MOONSTROKE»

The old stories and exaggerations on the effects of the moon rays have brought discredit on the subject There is no doubt however that long exposure to moon rays especially sleeping in the moonlight may cause headache and irritability Sailors believe that it may produce sudden night blindness and giddiness which they call «moonstroke» As is well known in ancient times it was believd that epilepsy and mental disease were due to lunar influence hence the term lunatic

Menstruation and pregnancy were also supposed to be under lunar influence It was believed that the majority of women were free from menstrution during the full moon and for that reason the most ancient celebratians and bacchanalia were set at that time It was also belived that the day of the full moon was the best day for marriage

2 FEVERS

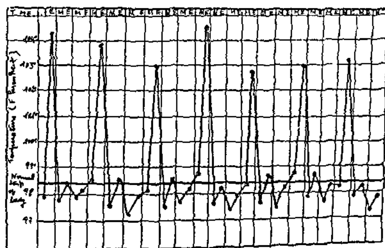
In the tropics and subtropics there are a number of fevers which are very little known a few of which I will now briefly discuss

NON MALARIAL QUARTAN FEVER

It is still considered an axiom in medicine by some authorities that a fever showing a quartan periodicity is malaria There is howe ver a quartan fever of non malarial origin which I described years ago in local publications in Ceylon A description of it was also given in Castellani & Chalmers Manual of Tropical Medicine 1919 pag 1470 and also in my recent Manual on Diseases of Africa (Rome 1947) It is a very rare fever The patient has an attack of fever every fourth day the temperature going up to 103 or 104 F and even more At the beginning of an attack there may be a mild shivering fit but this may be completely lacking When the tempe

rature goes down there may be sweating but this is also not a regular feature Malaria parasites are absent from the blood and quinine given in massive doses either by mouth or by intramuscular or intra venous injections has no effect whatever on the course of the fever which is prolonged lasting for several months The laboratory tests for *Brucellosis* and other infections are negative In the three cases I have observed neither the spleen nor the liver was palpable

In addition to this type of quartan non malarial fever which some observers designate with my name and the aetiology of which



Quartan like fever of non malarial origin (Ceylon case)

is not known there is in my experience a quartan fever of syphilitic origin *(Febris quartana luetica)* It is however extremely rare I have seen only one case a man of forty who had never been in a malarious region consulted me in London in 1925 for a fever which was occur ring every fourth day His general condition of health was good I had him under observation for a month and every fourth day there was an attack of fever no true shivering fit and the temperature never rose higher than 103 F there were no sweatings Malaria para sites were constantly negative and quinine in massive doses (45 grains daily) had no effect Wassermann was positive and a neoarsphenamin treatment cured the condition

In recent years a fever with a quartan periodicity has been described in a few cases of septicaemia due to *Neisseria meningitidis*. It responds to penicillin.

FEBRICULA AMOEBICA

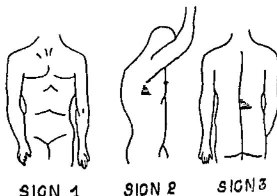
(Low amoebic fever)

This term is used to denote a fever, usually of the intermittent type, which is of amoebic origin although intestinal symptoms and signs are absent and the examination of the stools for hystolytica cysts may be negative very many times. In one of my cases cysts were found only on the 45th stool examination. The patient is usually in a fairly good general condition of health but complains of feeling feverish and tired, usually in the afternoon, the temperature seldom rising above 38 C. These cases are of very difficult diagnosis as the practitioner, owing to the absence of intestinal symptoms, seldom thinks of the possibility of amoebiasis and even if this suspicion occurs to him the examination of the stool is usually negative unless repeated very many times. The examination of the blood generally shows no abnormality except at times a slight degree of hypochromic anaemia, no leucocytosis, no eosinophilia.

In these cases a thorough clinical examination of the patient will often be of more value than the laboratory investigations. Fairly frequently in these cases one or two or all three clinical signs of latent amoebiasis I described some years ago (Journ. of Trop. Med. & Hyg. Sept. 1st 1939) will be found. These signs in all probability are due to the liver being affected, although symptoms of definite hepatitis with fever, palpable liver and leucocytosis are absent.

1) *The Infra Ensiform Tender Spot*. — The patient lies on his back. Fairly heavy mediate percussion is carried out on a line drawn from the tip of the ensiform process to the umbilicus, this line being a prolongation of the mid sternal line. The percussion is carried from the umbilicus towards the sternum. When a spot is reached immediataly below the ensiform process pain is felt by the patient, as is often seen by facial wincing. The symptoms may be elicited also by palpation, pressing the tip of the forefinger at various spots along the line. A similar tender spot is found also in cases of duodenal ulcer and at times of simple hyperchlorhydria but is usually situated somewhat lower down. The tender spot found in cases of cholecystitis is more to the right, just outside the right rectus muscle.

2) *Mid Axillary Dullness* — The patient lies on his back Percussion (rather firm but not heavy — the same type of percussion used in defining the cardia area with the Orsi Grocco method) is carried out along the mid axillary line The upper limit of the dullness may be as much as 1 or 2 in above the normal which usually is in the seventh space or on the eighth rib while on the mammary line the dullness of the liver has practically a normal limit which using this type of percussion is generally on the sixth space The following procedure may be carried out with a dermographic pencil the mid axillary line is traced From a point two finger breadths (about 4 cm) below the nipple a horizontal line is drawn meeting the mid axillary line at a right angle If on percussion there is dullness at the spot where the two lines meet and for a short distance outside it, the sign is positive



Sign No 1 — Subensiform tender spot
Sign No 2 — Upper limit of dullness on the median axillary line increased
Sign No 3 — Zone of dullness at right base (From Cannavò)

3) *Band of Dullness at the Right Base* — Percussing the back a zone of dullness is found at the right base in which the tactile fremitus is at times increased the zone may have a triangular shape This sign is probably due to the liver being enlarged and pushing the diaphragm upwards thereby causing a partial pseudo-consolidation or addensation of the lung tissue In several cases however the dullness is present with fremitus much diminished or even absent although there is no fluid in the pleura

The three signs may be present in the same patient but frequently only one or two are present

Radiological researches have been carried out by Acanfora Cannavò and others but not much light has been shown on the subject

In my original communication on the subjet (Journal of Tropical Medicine & Hygiene November 1 1935) I stated that the first sign is noted in about 15 per cent of cases of chronic amoebic colitis of the almost symptomless type I have described the second in about 20 per cent. and the third in about 10 per cent

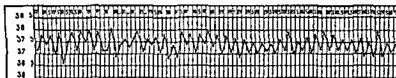
of cases My later experience is that occurrence of these signs s somewhat more f equent than I believed at first One or more of them are apparently present in about 30 per cent of the cases Pulle and other recent observers give a much higher frequen y of all three signs (see F P II Congresso Nacional de Medicina Tropical Lisboa 1952)

Treatment — The treatment of amoebic low fever consists of giving antiamoebics the best in these cases being still emetine

FEBRICULA CLIMATICA

(Climatic low fever)

There has been great discussion on the existence of a truly cli matic fever and there is no doubt that in the old days this term has been used to cover many cases of atypical typhoid undulant fever and many other febrile infections I believe however with many



Febricula climati a (Ceylon case)

other tropical clinicians that climate *per se* may cause at times a low prolonged intermittent fever The patient s general health is fairly satisfactory but every day usually about eleven a m the temperature rises reaching in the early afternoon a maximum of 37 5 C or a little higher and as a rule never exceeding 38 C In the evening between 7 and 11 p m the temperature gradually goes down to normal There are no shivering fits or sweatings and only very mild subjective sym ptoms are noted the patient complains often of fatigue and occasio naly of a slight headache The patient usually goes on attending to his duties It generally lasts three or four months and then gradually *or at times suddenly ceases*

Diagnosis — Before making a diagnosis of climatic low fever every other kind of low fever should be excluded and especially *low fever of tubercular origin* More than once in the tropics I have seen

cases which had been considered by the practitioner to be cases of climatic low fever develop clear signs of pulmonary tuberculosis An X ray of the chest should always be taken in cases of low fever *Prolonged low fever of malarial origin* is much rarer than believed at one time its diagnosis is based on the presence of malaria parasites and on the rapid beneficial effect of quinine paludrine atebrine and other antimalarial drugs A low intermittent fever is common in *ankylostomiasis* but the anaemic oedematous aspect of the patient will suggest this infestation and an examination of the stool for ova will clear the diagnosis although it should be kept in mind that the low fever may continue for a long time after an adequate treatment has been given and the worms expelled The fever in reality is of bacterial origin the small wounds produced by the worms in the intestinal mucosa become infected with various intestinal bacteria among which rather frequently *Bacterium asiaticum (Salmonella asiatica)*

There are many other low fevers as practically every specific pyrexial disease such as undulant fever typhoid paratyphoid etc is capable occasionally of presenting a low intermittent fever instead of the characteristic fever it generally gives rise to With Jacono we have studied for instance cases of *prolonged low intermittent fever due to Spirochaeta recurrentis* and similar spirochaetes (difficult diagnosis microscopical examination never sufficient animal inoculations necessary) and a *low fever of syphilitic origin* is far from rare, (Wassermann positive *responds promptly to specific treatment)* A low fever always to be kept in mind in the tropics subtropics and many parts of the temperate zone is the *fever due to mild subclinical hepatitis* (Examine patient for slight enlargement of liver presence of subcostiform painful spot on pressure presence of cysts in stools not rarely absent and if considered necessary carry out therapeutic test)

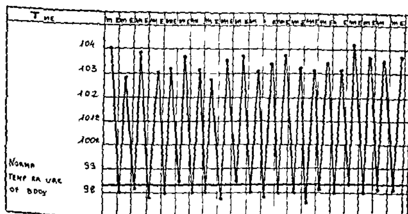
A *low prolonged fever of filarial* origin is not very rare it is usually due to *Wuchereria bancrofti* but apparently *Loa loa* and *Acanthocheilonema perstans* may also occasionally cause it

Cases of low fever are also due fairly frequently to focal infection of the nasal sinuses gums tonsils gall bladder appendix etc There is also a *low fever of endocrinic origin* being usually due to some degree of hyperthyroidism Finally some authorities still admit

a *low fever of hysterical origin* especially in young women known as «hysterical low fev r» (Search fcr hysterical stigmata such as bolus hystericus lack of pharyngeal and conjunctival reflexe pain on pressure of ovarian region and mamm) Hy teria is far from rare in native women)

TROPICAL NON SPECIFIC HIC I NTERMITTENT FEVER OF CHILDREN

This fever was described by m in 1909 in Ceylon Apart perhaps from slight anaemia the child does not show any symptoms



Tropi al h h it n te t t r of n ld en
(Portion of the tempe atur h t t f the Ceylon cases)

except the fever he takes his food well runs about and plays and seems apparently in his usual health The fever begins in the late morning and lasts several hours every day reaching to 103 to 104 F and more There is no shivering fit at the onset and no per piration when the temperature falls to normal The blood does not show any abnormality except o casionally a light degree of anaemia The urine is normal — no sign of coli infection The spleen and liver are not enlarged and no intestinal symptoms or rash are present All laboratory investigations are negative The cour e of the fever is very

long at times lasting several months With regard to treatment *quinine does not influence it in the least* but as a rule a change of climate stops the fever almost immediately In the three cases I saw in Ceylon the fever stopped immediately the little patient was taken to Nuwara Eliya a station in the hills from Colombo or to Conoor a hill station in India In the case I saw in Lybia a few years ago every possible modern investigation was carried out both in Lybia itself and in Italy as soon as the child arrived there by air the fever ceased without any treatment on the fourth day after arrival

«INSECT FEVER»

(Aspecific insect fever)

It is of course known to everybody that some insects carry and transmit to man pathogenic germs and viruses causing various fevers *Anopheles* mosquito inoculate malaria *Aedes aegypti* dengue certain *Phlebotomi* e g *Phlebotomus papatasii* Pappataci fever etc *Much less known is the fact to which I have called attention several* times that multiple punctures and bites of insects may cause *per se* feverish conditions for which I have introduced the collective term «Aspecific or Traumatic Insect Fever» I will say a few words on two varieties of it

Aspecific Pappataci Fever (Traumatic Pappataci Fever)

In localities where phlebotomi abound it is not rare for a doctor to be called by an anxious mother to see her child who she thinks has developed measles The child is restless and feverish but the thermometer seldom registers a temperature higher than 38 or 38 5 C The face and exposed parts of the body are covered with red macules maculopapules and papules and there may be some slight swelling This somewhat blotchy rash may closely resemble the rash of measles It does not affect however the covered parts and there is no coryza and no conjunctivitis The rash is pruriginous but in some cases the prutitus does not seem to be very severe The rash persists for a long time in fact until the correct diagnosis is made and the child protected from the phlebotomi or until the phlebotomus season ceases

A similar clinical picture may be found in adults but is usually much less severe It should be remembered that phlebotomi do not make any buzzing noise and the patient simply finds out that he has been «bitten» from the pruritus At the spot where the insect has «bitten» usually a red maculo papule or a definite small red papule develops not a pomphus as is the case with mosquitos The papule may persist 3 4 days and even longer

In countries where the pappataci fever occurs the diagnosis of aspecific pappataci fever may be very difficult but in true pappataci fever the temperature is much higher and on the third day it drops by crisis Moreover the face remains suffused for one or two weeks after the temperature has become normal (so called Castellani s pappataci diagnostic sign permiting a diagnosis of probability in retrospect) The treatment of aspecific pappataci fever consists in protecting the patient from the phlebotomi especially by the use of very small mosquito nets (which however are very uncomfortable) and by applying to the skin the following lotion which greatly allays the itching menthol grm 1 alcohol purum grm 50 glycerine grm 2 zinci ox grm 5 aquae dest ad grm 150 Shake well before using Dilute with the same amount of water for the face in adults and the whole body in children

DDT is very useful in the fight against phlebotomi

Aspecific Mosquito Fever (Traumatic Mosquito Fever)

Where mosquitos swarm a somewhat similar syndrome may occasionally be noted with fever and severe malaise but the rash is chiefly urticarial while in aspecific pappataci fever it is papular The diagnosis is made on the history and the presence of numerous most pruriginous pomphi and excoriations due to scratching

I saw one extremely severe case of this condition a few years ago in an adult person at a sea side place on the Adriatic coast of Italy to whom the hotel manager had given a room which had been shut up for some time and contained some famelic mosquitos During the night he was terribly bitten and the day after he felt seriously ill nauseated and feverish and the whole body was covered by innumerable most pruriginous pomphi The temperature in the axilla varied between 38 5 and 38 8 C and lasted for two days after he had been

moved into another room where there were *no mosquitos* All laboratory examinations were negative

Other Varieties of Insect Fever

There are several other aspecific insect fever aspecific bed bug fever aspecific tick fever aspecific louse fever aspecific flea fever aspecific ant fever etc I have seen a few cases of aspecific louse fever and aspecific flea fever in Poland and in the Balkans Aspecific tick fever is not extremely rare in tropical countries Some *years ago I saw a case in a* young European child near Mogadiscio Italian Somaliland The child was feeling out of sorts and had had fever for about ten days and various diagnoses had been suggested Laboratory negative Finally a tick was found attached to the scalp hidden by the hair It was removed and all symptoms disappeared within a few hours

It may be mentioned en passant that ticks can be made to drop from a person by the application of ether or cloroform A very simple method is just to touch the tick with the lighted end of a cigarette

FEBRIS AESTIVALIS THROMBOPLEOCYTEMICA
(Roman Gardens Fever)

In Rome and in the south of Italy in general there are certain little known summer fevers somewhat resembling dengue or influenza for which the practitioner often uses the term summer influenza Similar cases occur in the Balkans and in North Africa In my cases the patient almost always gave a history of having passed the afternoon in the garden although he did not recollect having been bitten by insects and did not show any bites The fever begins suddenly with occasionally a chilly sensation but no true shivering fit The temperature rapidly rises to 39 C — 40 C and *falls by rapid lysis* on the 4th 5 th 6th or 7th day and may occasionally show a saddle like graph No sweatings From the very beginning the patient complains of very severe headache and rheumatoid pains all over the body The face may be somewhat flushed but *not so flushed* as in dengue or pappataci fever There is no rash of any kind spleen and

liver are not usually enlarged The examination of the blood shows absence of malaria parasites and the number of leucocytes is about normal An interesting feature is the great increase in the number of bloodplatelets in one case the number reached 800 000 in another 1 200 000

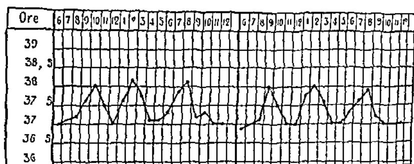
The fever is differentiated from dengue by the constant absence of the rash from pappataci fever by its course being somewhat more prolonged Moreover in pappataci fever the face is much more flushed and remains flushed for many days and even weeks after the temperature has fallen (Castellani s sign) It is not malaria as the examination of the blood never shows malaria parasites and quinine atebrin and paludrin have no action on it It is not influen a as catarrhal symptoms are never present It is not a fever of the typhus exanthematicus group as the course is much shorter and rashes are absent It is not a fever of the typhoid paratyphoid group as it lasts only a few days and moreover all the laboratory investigations for that group of fevers are negative

The treatment is palliative

FEBRIS PLURINDIEM

This is a very rare fever of which I have given a description in my Manual of African Diseases (Rome 1947) It is of unknown origin and is characteri ed by the occurrence of two pyrexial attacks *(Febris bisindiaca)* or three pyrexial attacks *(Febris terindiaca)* the same day Judging from the three cases I have investigated the first two in England the third in Italy the same patient does not show at times two attacks and at other times three attacks daily but constantly either two or three attacks Each attack lasts two or three hours seldom longer does not begin with shivering and does not end with sweating In my first case the patient was feeling very well in the early morning but at about 9 a m he began feeling very tired His mind was confused and he felt feverish and the temperature rose to 38 C. without any shivering At about 11 a m the temperature became regularly normal without any sweating or shivering The patient felt well and his mind was quite clear At 1 p m he had regularly a second attack with the same symptomatology which termi

nated at five p m and at nine p m he had a third attack again with the same symptoms In the second case the patient used to have two attacks daily without shiverings and without sweatings The maximum temperature varied between 38 and 38 9 C In my third case there were three attacks daily of the same type The examination of the blood did not show anything characteristic No definite leucocytosis no eosinophilia All laboratory examinations for malaria *filariosis undulant* fever syphilis etc were negative and quinine was useless In the third case sulphonamide drugs were tried with no



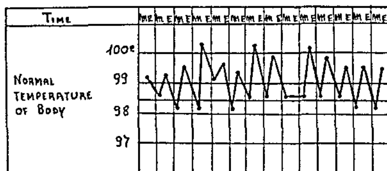
Temperature chart of a case of Febris plurindiaca (Febris terindiaca) on two consecutive days

result Antibiotics were not available In all three cases the fever ceased four months after arrival in Europe from the tropics

ANKYLOSTOMIASIS LOW FEVER

Some authorities still consider ankylostomiasis a non febrile disease There is no doubt whatever however that in over 50 per cent of the cases of infestation with clinical symptoms a low fever is present This fever was described (see Castellani & Chalmers Manual of Tropical Medicine 1919) many years ago independently by myself and Gabbi The temperature rises every day usually in the late morning or early afternoon — maximum seldom above 100 F there are no shivering fits and no sweatings In all probability the fever is not due to the worm itself but to intestinal bacteria infecting

and rendering septic the small wounds produced in the intestinal mucosa by the worm and at times entering the general circulation In several cases I have found *Salmonella asiatica* in the stools and the blood contained agglutinins for it The term ankylostoma fever therefore is not quite appropriate In a few cases the fever continues long after the patient has got rid of the ankylostomes by adequate treatment In addition to the low intermittent type which is the most frequently met with there is a subcontinuous type and an irregular



Ankylostomiasis fever Portion of the temperature chart of a Ceylon case

type at times intermittent at times subcontinuous there is also although extremely rare an undulant type

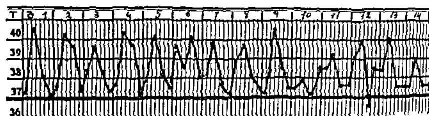
A similar type of fever may be found at times in ascariasis

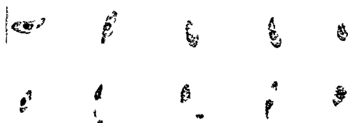
TOXOPLASMOSIS

(Toxoplasmic feve)

In 1913 I observed in Ceylon a case of chronic high intermittent fever with splenomegaly in which no malaria parasites were found and which did not answer to huge doses of quinine and terminated fatally A full account of the case with micro photographs and a coloured plate was published in the Journal of Tropical Medicine & Hygiene April 15 1914 In films made from the spleen numerou oval or somewhat spindle shaped or somewhat crescent bodies 2 5 4 5 6 mi crons in diameter with blue staining cytoplasma and with one large

rounding mass of chomatin at one pole or in the centre were seen I called the parasite *Toxoplasma pyrogenes* Cast 1913 A similar parasite was found in 1916 by *Fedorovitch* in a case of splenomegaly in a child on the Black Sea coast and also by Chalmers in the Sudan *in 1917* Micro photographs of the *Toxoplasma pyrogenes* were published in the 1919 edition of Castellani & Chalmers Manual of *Tropical Medicine p 489 and a short description of the disease* given on p 1035 It is interesting to note that my slides were exa





Toxoplasma pyrogenes

mined by a *number* of proto-oologists including Mesnil and medical men in various countries and they all agreed as to their parasitic and protozoal nature the majority among whom Mesnil and James believing them to be toxoplasmata

Wenyon however who had never seen the slides suggested some years later in a publication that the organisms were cryptococci and this statement has practically been copied by all subsequent writers on toxoplasmosis I have little doubt that if workers on the subject will consult my old paper in the Journ of Trop *Med & Hyg* (April 15 1914) and examine carefully the coloured plate and photo

micrographs they will convince themselves that the bodies are toxo plasmata (See also correspondence Journ of Trop Med & Hyg April 1952)

COLUMBENSIS FEVER

This fever was first found by me in Colombo Ceylon many years ago (Ceylon Medical Reports) and a description of it is found in the third edition of Castellani & Chalmers Manual of Tropical

Columbensis fever Portion of the temperature chart of a Ceylon case with beginning relapse

Medicine (1919 pag 946) and also in my Manual of African Diseases (Rome 1947) Cases have been reported in India by de Mello in Ceylon by Spaar in the Sudan by Chalmers in the Balkans and Southern Europe by Lurie Conte Scotti Servino and others An excellent general account of the disease has been given recently by Servino (Jour Trop Medicine & Hygiene April 1954)

Etiology — This disease is due to *Bacterium columbense (Salmonella columbensis)* which I will discuss with a few other intestinal bacteria later *As it is a non liquefier and as it produces acid and* gas in glucose and several other sugars although usually not in

lactose and never coagulates milk it has been considered to be a *Salmonella* by many authors until recently

Its action on lactose is most peculiar as a rule there is no production of acidity or gas but from time to time — usually at long intervals months and years — it suddenly produces acid and gas in that sugar (glucose peptone water) although it never coagulates milk In fact the milk has tendency to become alkaline The phenomenon has been noted by myself and others many times I still have cultures of the original strains and I will be pleased to send them to any medical man interested in the subject

A few more remarks on the organism may not be out of place *Bacillus columbensis* — I use of course the term bacillus not as a generic term but merely a a convenient general term to denote any rod like organism was first isolated by me in a case of typhoid like fever in 1905 in Ceylon and mentioned at local meetings (Ceylon Branch B M A) but in subsequent years I considered it a non typical strain of *B paratyphosus B* and not a separate species In 1913 I isolated it again from two cases of typhoid like fever one with urinary complications and came to the conclusion that the organism was a separate species of its own (Central f Bakt 1914 74 Bd Heft 3/4 p 197) and was pathogenic

The three strains were serologically culturally and biochemically identical The organism was a motile rod like aerobic (facultative anerobic) asporigenous Gram negative non liquefying non pigment producing germ gas fermenting glucose and a number of other sugars but not saccharose or raffinose produced indol negative Voges Proskauer The organism was a non lactose fermenter when first isolated (neither acid nor gas) but after subculturing for some time became suddenly a lactose fermenter (acid and gas) to become again a non fermenter (neither acid nor gas) after a few days This phenomenon has continued to appear from time to time till the present day

This phenomenon occurs also with cultures derived from a single cell It is interesting to note that during the periods of lactose peptone water gas fermentation the milk remains alkaline and does not become clotted It is also interesting to note that on MacKonkey s medium the colonies seem to be always permanently white

Apart from the phenomenon of occasional temporary lactose gas fermentation, the organism differs from the paratyphoid bacilli A, B C (*Salmonella paratyphosa S Schottmuelleri S Hirschfeldi*) in gas-fermenting glycerol and in producing indol it differs from *Bacillus asiaticus* in non fermenting saccharose and in fermenting (acid and gas) dulcitol and in producing indol it differs from *Bacillus morgani* (*sensu stricto* no fermentative action on maltose) in gas fermenting maltose dulcitol glycerol

The taxonomic position of B columbensis has been much discussed having been placed in many different genera *Bacterium Morganella Salmonella Proteus Escherichia Enteroides* The tendency at present is to place it in the genus *Esche*

richa although th s is not correct accord ng to the original def n tion of this genus (vide infra) The suggest on has also been made to place it in the genus *Ent roid s* Castellani & Chalmers 1919 The defin tion of the genus *Entero d s* as given by Castellani & Chalmers in the Manual of Tropi al Med cine 1919 p 1941 is as follows «Ebe theae fermenting glucose and lactose w th production of gas M lk not clotted» The definition of the genus *Esche ch a* Castellani & Chalmers 1919 is «Ebertheae fermenting gluco e and lactose with production of gas and clotting m lk»

It is to be noted that strains wrongly labelled *columben s* have found the r way into cert in Bacterial Collections

Morbid Anatomy — This is not known no death having occurred among the cases studied

Symptomatology — This is usually very similar to the symptomatology noted in a rather mild type of typhoid or paratyphoid but roseola is not present an dthe spleen is usually not palpable A common complication is pyelitis due to the same germ and then the fever may take a relapsing character and may last for many months and may give a great deal of anxiety to the attending physician

Diagnosis — This is based on the isolation of *Bacterium columbense* from the stools or urine with specific agglutinins in the blood while agglutinins for the typhoid and paratyphoid organisms brucellae etc are absent

Treatment — Chloromycin used in recent cases by Servino seems to give excellent results

«BACTERIUM ASIATICUM FEVER»

(Salmonella as atica parenteric)

Bacterium asiaticum (Salmonella asiatica) is an intestinal germ which is often nonpathogenic or has only a very slight pathogenic action It may however at times cause a fever of which two varieties may be distinguished The first variety resembles a mild form of typhoid but no roseola is seen and the spleen is not usually enlarged The second variety is a protracted low intermittent fever It is interesting to note that the low fever occurring frequently in severe cases

of ankylostomyasis is not rarely caused by it The diagnosis is based on the presence of *Bacterium asiaticum* in the stools and the presence of agglutinins for it in the blood while the agglutination for the typhoid and paratyphoid organisms is absent

For brief description of *B asiaticum* seep 1918

«BACTERIUM ALKALIGENES FEVER»

(Alkaligenes parenteric)

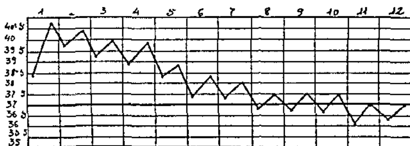
Bacterium faecale alkaligenes Petrusky and other species of the genus *Alcaligenes* though usually non pathogenic may at times cause a fever somewhat resembling mild typhoid but with no roseola and no enlargement of the spleen Cases have been observed by Straub and Krais Sheaman and Chalmers and myself The diagnosis is based on the presence of the organism in the stools and presence of agglutinins for it in the blood The infection does not appear to react to the sulphonamide drugs and the antibiotics so far as I know have not been tried

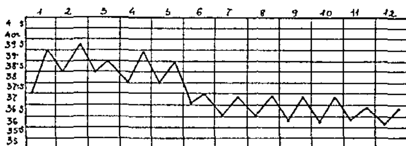
«ENTERO RHEUMATIC FEVER»

A full description of this fever which is far from being rare in Italy was given by me in the *Policlinico* volume 53 year 1946 and a fairly complete one may be found in my Manual of African Diseases (Rome 1947)

The onset is usually sudden with severe pains all over the body complete anorexia tongue heavily coated offensive breath severe diarrhoea or at times very marked constipation There may be some abdominal pain but it may be completely absent The fever is usually of a continuous or subcontinuous type with maximum of 39 or 40 or 40 5 C it lasts about five to ten days and then the temperature gradually or rapidly falls to normal (The two graphs are from two patients in the Rome University Clinique for Tropical and Subtropical Diseases 1945 in fact two assistants of the Clinique who became infected at a short interval one from the other) No rash Spleen and liver not enlarged The patient looks and feels very ill and prostrate

Arthritic and myalgic pains last during the whole course of the fever but no swelling of the joints is noted Pressure and active movement increase the pain The examination of the stools which are generally strongly alkaline shows absence of bacilli of the dysentery typhoid paratyphoid food poisoning groups and absence of protozoa Instead a proteus is present in enormous numbers the examination of plates





Temperature chart of two cases of entero rheumatic fever The two patients were assistants in the University Clinique for Tropical Diseases Rome

made from the stools will reveal that usually more than fifty per cent of the colonies present are proteus using the collective term proteus in its original meaning to denote intestinal asporigenous rod like bacteria producing no pigment but liquefying gelatine and coagulated serum and often increasing the alkalinity of the media The patient s blood about the fifth day of the fever and for weeks and months after agglutinates this organism as well as laboratory cultures of several other strains of proteus including Proteus X19 Organisms

Bacillus ceylonensis A (Cast 1907) (*Bacterium sonnei* Levine *Castellanus krusecastellani* Cerruti *Shigella sonnei* Weldin) Non motile non liquefying orgā nism originally isolated in Ceylon from cases of chronic pyrexial colitis Does not produce gas in any sugar Produces acidity in glucose and after repeated transplan tation in several other sugars Produces acidity in lactose very slowly and milk is clotted very slowly Indol negative Cerruti (1930) showed that *B sonnei* is identical with it The original strain is still available

Bacillus ceylonensis B (Cast 1907) (*Shig lla ceylonensis B Castellanus cas tellanii* Cerruti) Produces no gas in any carbohydrates acidity in glucose and several other sugars including lactose Indol positive Not agglutinated by *ceylonensis A* serum and *madampensis* serum

Bacillus madampensis (Cast 1911) (*Shigella madampensis Castellanus madam pensis*) Indol positive Not agglutinated by *ceylonensis A* and *ceylonensis B* sera

To denote the group *Bacillus ceylonensis B B ceylonensis B* and *B madam pensis* I introduced years ago as a convenient collective term the t rm metadysen tery bacilli Cerruti in 1930 created for this group the genus *Castellanus* differing from the genus *Shigella* in acidifying lactose and clotting milk The three species *ceylonensis A ceylonensis B* and *madampensis* can in practice be easily differen tiated as follows *ceylonensis A* does not acidify dulcitol does not produce indol *ceylonensis B* acidifies dulcitol produces indol *madampensis* does not acidify dul citol produces indol They can also be identified by serological methods as there is no cross agglutination among these organisms

3 INTERNAL DISEASES

Diseases of the mouth and fauces

STOMATITIS CRYPTOCOCCO BACILLARIS

This stomatitis was described by me in 1925 in Central America (Diseases of Central America Journal of Tropical Medicine 3 Hygiene Vol XXVIII 1 1925) The condition is very different in appearance from ordinary thrush the patches which are generally somewhat diffuse are scarcely raised and are not creamy white They have the appearance of a thin translucid whitish film covering parts of the oral mucosa occasionally giving the impression of being patches of incipient leukoplakia but microscopical examination of

B Ceylonens atyphosa A), B Paratyphosus B (Salmonella paratyphosa B) B
like bacterium

Org nism	Gly ol	Li m M lk	I d l	Rem k
S columbensis (Morganella Salmonella Proteus Escherichia Enteroides columbensis)	A G	O	+	D ffers from the *paratyphi* C) in gas ferment ng grycerol producing indol Differs serol organisms and other sal non *B asiaticum* in not gas ferm and serologically Differs fro ferment ng maltose and sero nally will produce suddenly lactose peptone water wh tted and remains alkal ne
B asiaticus (Salmonella asiatica)	A G	A or Alk	S or O	
B faecalkaligenes	Alk or O	Alk	O	All typical strains produc some strains peptonize milk
B proteus (Proteus proteus)	O or As	C or P	+	Some strains have d ffer A Variety *matadiffluens* pr mentation of any sugar
B ceylonensis — A (Castellanus sonnei kruse-castellani)	A or O	A C (v slowly)	O	Some strains on first iso in glucose and the acidificat be absent or extremcly slo *and Kruse s pse do dysentery* to be identical with it
B ceylonensis — B (Castellanus ceylonensis)	A	A C	+	Differs serologically fr *madampe sis* and all other dy
B madampensis (Castellanus madampensis)	O or A	A C	+	Differs serologically from e *B ceylonensis — B*
B morgani (Proteus morgani	O	O	+	
B paratyphosus — A (Salmonella paratyphosa)	O or As	A	O	The strain *sendaiensis* isol not gas ferment any sugar ted to titre by *S paratyphosa*
B paratyphosus — B (Salmonella Schottmuelleri)	O	O A Alk	O	Certain strains serolog c d ce at times only A inst strains do not ferment inos
B coli (Communis type) Escherichia coli var communis	A G	A C	+	B coli *(Escherichia col,* to many d fferent asporogen l ke bacteria all characteri
B. coli (Communior type) (Escherichia coli var communior)	A G	A C	+	t ng lactose and clotting mil Some authors use the te ind ate those which gas f and col comun s to ind cate gas ferment that sugar

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Table shewinaris B Ceylonensis A (Shigella sonnei Castelianus krusecastellanii)
B Ceylonensatyphosa A) B Paratyphosus B (Salmonella paratyphosa B) B coli
like bacterium

Org nism	Gly l	Lm s M lk	I d l	R m k
S columbensis (Morganella Salmonella Proteus Escherichia Enteroides columbensis)	A G	O	+	Differs from the *paratyphoid bacilli* (A B and C) in gas fermenting grycerol salicin and in often producing indol D ffers serologically from those organisms and other salmonellae Differs from *B asiaticam* in not gas fermenting saccharose and serologically Differs from *B morgani* in gas fermenting maltose and serologically Occasionally will produce suddenly acid and gas in lactose peptone water while milk is not clotted and remains alkaline
B asiaticus (Salmonella asiatica)	A G	A or Alk	S or O	
B faecalkaligenes	Alk or O	Alk	O	All typical strains produce strong alkalinity some strains peptonize milk
B pr teus (Proteus proteus)	O or As	C or P	+	Some strains have different sugar reactions A Variety *matad fflue s* produces no gas fermentation of any sugar
B ceylonensis — A (Castellanus sonnei kruse-castellani)	A or O	A C (v slowly)	O	Some strains on first isolation produce acid in glucose and the acidification of lactose may be absent or extremely slow *Sonne s bacillus and K use s pse do dysentery E* hase been shown to be identical with it
B ceylonensis — B (Castellanus ceylonensis)	A	A C	+	Differs serologically from *ceylonensis — A n dampensis* and all other dysentery organisms
B madampensis (Castellanus madampensis)	O or A	A C	+	Differs serologically from B *ceylonensis — A* e *B ceylonensis — B*
B morgani (Proteus morgani	O	O	+	
B paratyphosus — A (Salmonella paratyphosa)	O or As	A	O	Ihe strain *sendaiensis* isolated in Tapan does not gas ferment any sugar although agglutinated to titre by *S paratyphosa — A* serum
B paratyphosus — B (Salmonella Schottmuelleri)	O	O A Alk	O	Certain strains serologically typical will produce at times only A instead of AG some strains do not ferment inositol (Weiss e Rice)
B coli (Communis type) Escherichia coli var communis	A G	A C	+	B coli *(Escher chia col)* is a term applied to many different asporigenous intestinal rod like bacteria all characterized by gas fermenting lactose and clotting milk
B coli (Communior type) (Escherichia coli var communior)	A G	A C	+	Some authors use the term colicomunior to indicate those which gas ferment saccharose and colicomunis to indicate those which do not gas ferment that sugar

O = Negative resproductiva of indol O = negative

Bacillus ceylonensis A (Cast 1'
krusecastellani Cerruti *Shigella sonne*
nism originally isolated in Ceylon fro
produce gas in any sugar Produces ac
tation in several other sugars Produ
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Bacillus ceylonensis B (Cast 190
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Bacillus madampensis (Cast 1911)
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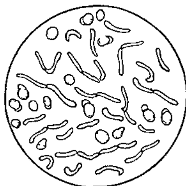
3 INTERN

Diseases of the

STOMATITIS CRYP

This stomatitis was describe
(Diseases of Central America
Hygiene Vol xxviii 1 1925)
appearance from ordinary thrush
somewhat diffuse are scarcely
They have the appearance of a t
parts of the oral mucosa occasio
patches of incipient leukoplakia

scrapings will enable a differential diagnosis to be made The first two cases of this stomatitis I observed in Central America later I saw a case of the same or a very similar type in Europe The condition seems to be due to a very delicate yeast like fungus which I called *Cryptococcus gracilоides* (= *Pityrosporum gracilоides*) living in symbiosis with a bacillus *B vermiculoides* which I first described in 1925 A detailed account of these two organisms is



Symbiosis Cryptococcus graciloides — Bacillus vermiculoides

found in the Journal of Tropical Medicina and Hygiene Vol XXVIII 217 1925

«CAT TONGUE GLOSSITIS

(Langue de Chat» Glossitis)

The patient complains of discomfort and pain in the tongue and there may be salivation The tongue is brick red and the dorsum shows a peculiar granular appearance somewhat resembling what the French authors call «langue de chat» No patches of thrush appear but there is little doubt that the condition is mycotic In deep scrapings both microscopically and culturally numerous candidae are found usually *Candida albicans* and C *tropicalis* The treatment consists in carbolic acid mouth washes (½ %) and in giving potassium iodide by mouth

STOMATITIS MEMBRANACEA MALIGNA
(Malignant Membranous Stomatitis)

This condition has been observed by me in the Balkans and in Louisiana As far as I know there is no literature on the subject the condition generally being confused with Plaut Vincent s stomatitis or with thrush I have described it in some old publications among which «Minor Tropical Diseases» (Transactions Royal Society of Tropical Medicine Vol 24 p 394 1930) and in my recent Manual of the Diseases of Africa (Rome 1947) The disease at present seems to have *practically disappeared from Louisiana*

Clinical Symptoms — In a typical case the patient in Louisiana very often a coloured young or middle aged woman shows on the oral mucosa especially the dorsum of the tongue some large white membranes or more correctly pseudomembranes which in many cases can be easily stripped off when the surface of the mucosa will appear raw and inflamed without however true ulcerativa lesions The membrane is white quite thick and after *stripping* often *reforms* The condition is painful and there is frequently fever usually of a low intermittent type but at times the condition becomes grave and in certain cases extremely so the patient *looks* and *feels very ill* the pulse is weak and rapid of low pressure at times there may be high fever The examination of the chest and abdomen does not reveal any condition which can explain the gravity of the case the usual blood tests (Wassermann agglutination tests for enterica etc) are negative The blood picture varies in certain cases there is a poly morphonuclear leucocytosis but it is not constant the hæmoglobin and number of red blood cells may be decreased A certain number of *cases terminate fatally* and the post mortem findings with the exception of the oral mucosa are negative In a case in New Orleans in 1928 during *the last few days of life pneumonia developed and* the post mortem findings showed merely *the usual features of lobar* pneumonia

Diagnosis and Etiology — The condition must be differentiated from Plaut Vincent s stomatitis as the gums are not affected and the

membranes are much thicker and are fairly easily stripped off Moreover in the incipient stage no spirochaetes and fusiform bacilli are found though later both these organisms may in a few cases be present but only in very scanty amount they are always mixed with many other organisms and are certainly secondary invaders In several cases a peculiar coccus is present which while fermenting glucose has practically no fermentative action on levulose (M *laevulosinertis* Cast 1928) but in my opinion no aetiological importance may be given to it The condition has nothing to do with thrush as the white membrane is not composed of candida fungi but apparently chiefly of fibrin no mycetes being present Is it a manifestation of pellagra? In none of the cases I have seen was there any sign of pellagra such as the typical dermatitis or hyper pigmentation or nerve symptoms and I must add that all the cases I have seen in Louisiana had been diagnosed by the local medical men as Plaut Vincent s angina or malignant thrush and none of them had suggested pellagra although they knew pellagra well this disease being quite common in the Southern States In pellagra there is of course very often a glossitis but this is generally Sandwith s bald tongue — clean red and smooth sometimes with small ulcers near the tip We must therefore come to the conclusion that the aetiology of this disease is unknown although I cannot help thinking that further investigation may possibly reveal the condition to be in some way associated with pellagra or at any rate to be a deficiency disease

Treatment — This is unsatisfactory On the assumption that it might be a manifestation of pellagra or at any rate a condition related to pellagra I tried a diet rich in animal protein and injections of liver extract (nicotinic acid was not yet known) but I was unable to con vince myself that it did much good If the patient has no idiocyncracy for milk this is probably the best food and will not irritate the mouth At present nicotinic acid and riboflavin shoult be tried Locally mild mouth washes should be used for instance carbolic acid (1 200) A mouth wash which at times is useful is the following Glycer boracis grm 20 Glycer ac carbolici grm 20 Aq rosae ad grm 180 One teaspoonful in a large tumbler of tepid water if there is much pain 30 centigrams of cocaine hydroclorate or stovaine may be added to the prescription Applying a methylene blue paint (Medicinal

methylene blue gram 0 20 Aq dest grm 30) to the lesions is occasionally useful

LEUKOKERATOSIS LINGUALIS HYPERTROPHICA

In the tropics I have seen three cases of a peculiar hypertrophic leukokeratosis of the tongue of obscure origin syphilis yaws over



Case of Leukokeratosis Lingualis Hypertrophica in a woman

smoking being excluded with certainty In none of the cases epithelioma developed Four years ago I saw a similar case in Portugal Although Wassermann was negative an antisyphilitic treatment was given without any result A distinct improvement was obtained by

using locally a strong solution of resorcin So far in this case also no epitheliomatous changes have taken place

ULCUS ORIS PERSTANS

This rare condition has been observed by me in patients of Caucasian race and in a negro in New Orleans and later in a white officer returning from Ethiopia and another white officer in 1946 who had contracted the disease in Libya

Etiology — This is unknown

Symptomatology — On the oral mucosa corresponding to the region of the cheek one or two or three fairly large roundish or oval rather shallow ulcers are seen which persist for years and do not respond to any treatment The ulcers which may have a diameter of 1 to 3 cms — present a red fundus smooth and at times slightly granulating The margins are not undermined The ulcers are never painful and not very tender In one of the cases the submaxillary lymphatic glands were slightly enlarged but not painful on pressure

Diagnosis — The diagnosis is based on the presence of one or more ulcers on the oral mucosa which persist for years having no tendency to spontaneous amelioration and not answering to any treatment including arsphenamine mercury potassium iodide and also sulphonamides and penicillin which were tried in the last case Scrapings are negative for T B spirochaetes leishmania and fungi Inoculations of the scrapings into guinea pigs negative The Wassermann test negative The condition must be differentiated from relapsing ulcerative stomatitis In the latter condition the ulcers are more than one two or three/much smaller and heal within a few weeks or months and they are painful not rarely crops of aphthae looking superficial small ulcers appear on the genital organs from time to time

Prognosis — The general health does not seem to be much affected but the ulcers do not heal for years

Treatment — Most unsatisfactory Keep the ulcers clean by using diluted hydrogen peroxide A 1/2 or 1 per cent methylene blue paint may be applied Castellani s *fuchsin paint may* be used The ulcers may be touched occasionally with 1 or 2 per cent silver nitrate solution or argyrol or collosol argentum A mouth wash containing 1/2 per cent carbolic acid may be used

BROWN THRUSH

(Stomatitis mycotica fusca)

This condition is rare It may be found alone or in association with tonsillomycosis fusca It is characterized by the presence of one or several patches about 1/3 to 1 cm on the oral mycosa usually somewhat raised brownish or yellowish brown or dark brown n colour or occasionally of a dirty whitish colour The condition has very little tendency to spontaneous cure and may last for many months and even years

Scrapings show the presence of filamentous fungi quite diffe rent from those found in ordinary white thrush as there are no free budding globular or ovoid cells consisting solely or almost solely of mycelial threads They belong to the genus *Geotrichum* The commonest species is *Geotrichum rugosum* Cast (synonyms *Trichosporum rugosum Hemispora rugosa Monilia rugosa Oidium rugosum*)

LEPTOTHRIX THRUSH

(Leptothrix Stomatitis)

Accumulations of leptothrix vibriothrix and other thin filamen tous fungi some of them found in normal mouths may produce small whitish spots on the oral mucosa but the condition is extremely rare The treatment consists in applying tincture of iodine or Castellani fuchsin paint

STOMATITIS ERYTHEMATOSA GUTTATA PRURIGINOSA

Castellani has observed several cases of a peculiar condition characterized by the presence of circular or oval erythematous patches

of various si e principally on the mucosa of the hard palate These circular patches remain for three or four days seldom for more than a week and then disappear without any exudate or ulceration for ming The patient complains of itching in the patches or in the mouth but not on the body there is no pain no tenderness The general health may be excellent or the patient may complain of feeling «liverish» Blood normal no eosinophilia The examination of the urine and stool shows nothing abnormal The patches disappear spon taneously within a week but a mouth wash containing glycerine of alum and glycerine of carbolic acid is useful The condition is found at times in subjects with hypertrophic tonsils

The affection may be a form of locali ed urticaria but no sign of urticaria is ever found in the body and there is no tendency to dermatographia

If the ichting is very severe luminal may be given internally 1/4 grain four time daily In one of our cases the only drug that stopped the pruritus was heroin by the mouth 1/6 grain four times daily

«DOEDERLEIN BACILLUS STOMATITIS

We have seen two cases of acute diffuse painful catarrhal stomatitis developping in two men addicted to cunnilinguium A gram positive bacillus was present in enormous numbers on the surface of the tongue and in the saliva indistinguishable from Doderlein organism *(Bacillus vaginalis B crassus)* which is normally found in the vagina and is considered to be non pathogenic

BIGIO

Synonyms — Habeb Somaliland Falciform ulcer of the lips

This conditions is fairly common in Somaliland and other parts of East Africa It has been known to the natives of Somalia for many years They refer to the condition as «bigio» and to the sufferer a «bigiole» In some districts of Somalia they call it habeb A good decription of it was given by Ruberti Fiers in 1929 He was inclined

to identify it with an affection of the lips decribed by H Gros in Algeria in 1909 but Gros described *in reality a gingivitis with no* lesions on the lips as can be found in his original *paper* published in the Bulletin de la Societe de Pathologie Exotique 1909 p 282



Case of Bigio

In typical cases the mucosa of the lower lip from commissure to commissure is *superficially ulcerated the whole ulcerarated area* having a falciform appearance The ulcerative process affects the mucosa and vermilion part *without spreading to the skin*

The surface shows a slight serous exsudation which may dry up in a yellowish thin crust Depigmentation is noted There is no pruritus and no pain The course is extremely chronic in some cases the disease lasting ten to twenty years When *it heals a certain*

amount of fibrosis is left and depigmentation The aetiology is unknown It has been suggested that it may be a form of avitaminosis The treatment is rather unsatisfactory The natives praise a paste consisting of antimony and goat s liver which they call «kohol» Cicchito strongly recommends the local application of Castellani s fucshin paint

ENDEMIC PAROTID ENLARGEMENT

(Endemic hype pl s a of the parotid)

Synonym — Mangy (Madagascar)

Remarks — The condition is common in Egypt and other countries situated in the tropical and subtropical zones but may occur also in the Temperate Zone Attention was first called to it in Egypt by Sandwith in 1905 He believed it to be due at least in some cases to obstruction of Stensen s duct It was later observed by Day Biggam Chalioungui and others in the same country It has been noted by Fontoynont in Madagascar where it is known by the natives as «mangy» It has been observed also in the Dutch Indies by K de Jonge especially in association with beri beri An excellent paper on the subject is by Kenawy

Etiology — The aetiology is unknown An avitaminic origin has been suspected as a type of this condition is common in pellagra Microbic and virus theories have been brought forward As the condition has been found at times in case of diabetes it has been suggested that the parotid enlargement may be of a compensatory nature to counteract the diminution in the functions of the pancreas Flaum believing that the parotid glands have an internal secretion increasing sugar tolerance

A few observers have considered the condition to be a mild type of Mikulicz s disease

Predisposing Causes — The condition may be found in people of all ages from ten to sixty five years and over It is much more common in men than in women Pellagra beri beri diabetes and

ancylostomiasis are considered to be predisposing causes by some observers

Pathology — The gland is much larger than normal and about two to four times as heavy Histologically *there is an increase in the* number of the ducts and ductules some of which are ectatic The acini are numerous *There is no sign of inflammation In contrast to* recurrent parotitis there is no proliferation of the duct epithelium

Symptomatology — The parotid regions appear swollen but there is no inflammatory sign and no pain or tenderness The condition may be bilateral or unilateral It develops slowly without any apparent reason and the course is extremely prolonged spontaneous involution being exceptional

Saliva — No definite sialorrhoea is present or at any rate the patient never complains of hypersecretion of saliva The reaction is *often alkaline* The *ptyaline content is not* diminished Potassium thiocyanate is constantly absent Squamous epithelium cells in various *numbers are found but only a few pus cells are present unless there* is some gingivitis Saliva obtained by catheterization of Stensen s duct is alkaline it does not show pus cells or only a few and no bacteria are present

According to Kenawy the average total solid contents is about 0 57 gramme por cent and the calcium 6 9 milligrammes per cent while in normal Egyptians the total solids content is about 0 65 gramme per cent and the calcium 7 9 milligrammes per cent The absence of potassium thiocyanate is not due to failure of its excretion by the salivary glands because when thiocyanate is administered it appears in the saliva in the normal range

Sialography — Sialography carried out by injecting lipiodol in Stensen s duct shows *nothing abnormal in about* half of the cases but the large size of the gland is put in evidence In a number of cases there is dilatation of *the main duct or ductules In some cases* a leafless tree appearance in noted due to the multiplicity of the ducts Stensen s duct is usually patent but *occasionally may show* some tortuosity due to fibrosis

Diagnostic — This is based on the bilateral or unilateral persistent painless swelling of the parotid region without any sign of inflammation and with no tendency to spontaneous regression

Differential Diagnosis — Mumps runs an acute course with fever and complete disappearance of the swelling seven to ten days after the temperature has become normal In recurrent parotitis there are periods when the glands are not enlarged In Mikulicz s disease the lachrymal glands are also enlarged and the disfigurement is much more Moreover the histological examination of a piece of the excised gland shows a diffused inflammation with lymphoid cells especially around the walls of the alveoli In uveo parotid disease of Heerfordt there is unilateral or bilateral enlargement of the parotid glands with uveitis and facial paralysis

The uveal lesions are usually in the form of iridocyclitis and the condition is of tubercular origin

Prognosis — The general health is not affected but the condition is chronic and somewhat disfiguring Spontaneous regression is exceptional it has been noted occasionally after an attack of erysipelas

Treatment — X ray therapy is most useful It should be given in small dosage at weekly intervals Five or six applications are generally sufficient

RECURRENT PAROTITIS

We haven seen a few cases of this condition in white children and young adults and also in children and young adults of various native races From time to time the parotid regions swell and there may be some sligth local discomfort Fever is usually absent and the general condition of health is not much impaired The condition may be unilateral or bilateral Two principal aetiological types have been described the bacterial type generally caused by streptococci of the viridans group and the allergic type which is often acompanied by urticaria Quincke s oedema and asthma A so called nervous recurrent enlargement of the parotids has been described in neurotic subjects

MACROGLOSSIA MYCOTICA CANDIDIACA (MONILIACA)

This condition was observed by me in three cases in Ceylon during the period 1910 to 1915 In 1923 an interesting case of the same type was kindly sent to me in London by my friend Dr Broughton Alcock for investigation Pereira Filho (1927) described a case in Brazil Later other cases have been placed on record

General remarks — The condition is not a form of blastomycosis as generally understood in North America and Great Britain vi an affection characterized by the presence of large framboesiform papillomatous nodules and plaques due to the same fungi which cause Gilchrist s disease The condition is apparently caused by fungi of the genus *Candida* — the same fungi that cause thrush — which penetrate deeply into the tissues of the tongue causing inflammatory and hypertrophic changes of the whole or part of the organ Usually the whole tongue is very greatly enlarged and occasionally painful the patient feels discomfort in eating and may have some difficulty in speaking — he cannot whistle On the surface of the tongue slightly elevated verrucoid patches may be noted in certain cases in a few cases thick thrush membranes may be present Deep scrapings should be made from the tongue after drying and painting with tincture of iodine and cultures made The finding of yeast like organisms in superficial scrapings of the tongue has no importance as these fungi are frequently found in that situation even in normal mouths Potassium iodide has a very beneficial effect on the condition and vaccines prepared with fungus also seem to be useful in desensitizing the patient

Etiology — In the Ceylon cases I found candidae of the types *tropicalis* and *albicans* var *pinoyi* In the London case I found a candida with the following characters does not produce gas in any sugar occasionally produces slight acidity in glucose there is no change in litmus milk As this candida produces no gas in any sugar it belongs to the group *zeylanica* *zeylanoides* it differs from the former by not producing any yellowish pigment I called it *Monilia*

macroglossiae at present known as *Candida macroglossiae* It may be merely a variety of *C eylanoides*

Pereira Filho isolated a candida with the following characters from his case in Brazil does not liquefy gelatine or serum does not clot milk produces acidity and gas in glucose levulose and maltose produces acidity only in sacharose and galactose it does not touch lactose mannitol dextrin or arabinose Pereira Filho (1927) made a new species of the candida he observed and did me the honour of calling it *Monilia aldoi* It seems to be a variety or strain of *Candida albicans*

BACTERIAL FOETOR ORIS

In my experience foetor oris (halitosis) is quite common in the tropics possibly more common than in the temperate one As is well known it is due to a variety of causes the principal ones being decaying teeth gastro intestinal disturbances and certain chronic broncho and broncho pulmonary conditions (bronchiectasis and gangrene of the lung)

A type of foetor oris which I have studied and which sems to be quite common is due to the presence of certain evil smell producing bacilli in the fauces and on the surface and in the cryptae of the tonsils Of these bacilli I have isolated two principal types one with the biochemical characters of a coli like organism (*Escherichia colo foetida* Cast) and the other with the biochemical characters of an alkaligineslike organism (*Alcaligenes alkalofoetidus* Cast) They are both Gram negative and motile bacteria and their biochemical characters were described by me in 1930 (Foetor oris of tonsillar origin and certain bacilli causing it Lancet i 623)

In some cases of foetor oris of tonsillar origin evident lesion of the tonsils are present such as white grains in the cryptae (tonsillo granulomycosis) If the white grains are extracted and squashed a most offensive odour due to the presence of the bacillus is often emitted I have frequently found the bacilli present together with a number of other organisms suche as cocci actinomyces candidae spirochaetes fusiform bacilli and in exceptional cases even amoebae and flagellates None of these however seem to be the cause of the bad odour In some cases the white granules are odourless and the

bacilli I have described are absent In some cases no gross lesions are present the tonsils being merely enlarged at times apparently quite normal Swabs taken from the tonsils and fauces however reveal the presence of one or the other type of the bacilli described above *With regard to treatment* when gross lesions are present enucleation is the best therapeutic measure when no gross lesions are present a vaccine treatment may be tried as well as local applications of various disinfecting paints the best apparently being the fuchsin paint that goes by my name There is no danger whatever in the patient swallowing a bit of it with the saliva but the urine may become slightly pinkish or reddish

It is interesting to note that the original strains of *Bacillus colofoetidus* isolated in 1928 and 1929 and since then subcultured *hundreds of times still present the same biochemical characters and* still produce a very offensive odour in peptone water and broth (See Castellani A and De Silva R Journ Trop Med & Hyg December 1951)

TONSILLOMYCOSES

Tonsillomycoses viz diseases of the tonsils due to fungi are comparatively speaking quite common in the tropics and several times I have been called in to see cases which had been diagnosed as diphtheria I have given a general account of tonsillomycoses in many publications including my recent book on Diseases of Africa (Rome 1947) and will therefore limit myself to mentioning here only a few which are of *practical importance to the newly arrived* medical man in the tropics

Tonsillomycoses may be classified in different ways a purely aetiological classification may be adopted or a histopathological classification or a clinical classification As the same clinical syndrome may be caused by a large number of *different fungi it is probable* that from a practical point of view a clinical classification is the bes

The following is *the classification* I *have suggested*

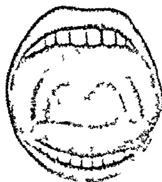
1 — *Acute tonsillomycoses* Tonsillomycosis follicularis tonsillomycosis diphtheria similis vel membranacea

2 — *Chronic tonsillomycoses* (1) tonsillogranuloactinomycosis (2) tonsilloagranuloactinomycosis (3) tonsillomycosis spinuolosa (4) tonsillomycosis fusca

FOLLICULAR TONSILLOMYCOSIS

(Tonsillomycosis follicularis tonsilloblastomycosis follicularis *pro parte* *tonsillooidiosis follicularis pro parte tonsillomoniliasis pro parte* tonsillocandidiasis *pro parte*)

Etiology — In the enormous majority of cases the condition is due to yeast like fungi of the genus *Candida (tonsillocandidiasis*



Tonsillomycosis follicularis

vel moniliasis) the ordinary causative agents of thrush and in reality the condition is a variety of thrush in some cases to yeast like fungi of the *Cryptococcus* vel *Torulopsis* type and in a few cases to fungi of the genus *Saccharomyces* occasionally to fungi of the genus *Debaryomyces* of the genus *Willia* of the genus *Geotrichum* Fungi of the genera *Actinomyces* and *Vibriothrix* have at times been found

Symptomatology — On the surface of the tonsils several white or *whitish grey or whitish yellow spots are seen corresponding to the* openings of the follicles The patient complains of a sore throat and

discomfort in swallowing there may be fever but the general condition seldom becomes serious and the affection usually heals spontaneously within one to three weeks Occasionally the mycotic infection spreads to the uvula and soft palate *forming diffuse white patches* and then becomes indistinguishable from the diphtheria like type of tonsillomycosis In other cases the mycotic infection spreads from the tonsils all over the oral mucosa An interesting case of this type has been described by Muggia

Diagnosis — This is based on the microscopical and cultural examination of the patches Usually a large number of yeast like cells are found while streptococci and other cocci and spirochaetes are absent or present in very small numbers only In a few cases when the condition is caused by the genus *Geotrichum* mycelial filaments are abundant *while budding cells are absent* *Prognosis* is usually favourable

Treatment — At times the local application of glycerine of borax or of a solution of carbolic acid 1 20 is sufficient in many cases diluted tincture of iodine (1 20 1 40) is useful Internally salicylates aspirin phenacon pyramidon may be given In the cases which do not clear up quickly potassium iodide should be administered or collosol iodine or saiodine Recent experience has shown me that the simple application twice daily to the throat of my fuchsin paint is usually the simplest and best treatment

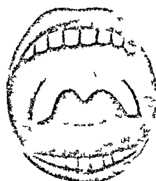
TONSILLOMYCOSIS DIPHTHERIA SIMILIS

(Tonsillomycosis membranacea)

Etiology — The disease is usually caused by yeast like fungi of the genus *Candida* The species found are in most cases of the *albicans* type and *tropicalis* type *In a few cases fungi of the genera Debaryomyces Willia* and *Saccharomyces* are present

Symptomatology — The onset is often sudden with a severe sore throat and difficulty in swallowing *the patient feels* very ill and complains of great prostration he sometimes has rheumatoid pains

in the joints fever is present and may be fairly high (102 to 103 F) Some of the cervical glands may be swollen and tender The inspection of the throat will show creamy white patches on the tonsils the uvula and occasionally the soft palate the patches often coalesce. Removal of these patches may in some cases leave a very slight ulcerative bleeding surface If the membrane like structure is placed between two slides it often feels like putty and lacks the elasticity and resiliency of a diphtheria pseudomembrane It should be kept



Tonsillomycos s d phteria simil s

in mind that practically in every case in addition to the fungi streptococci are present and may play a role in the aetiology of the condition

Illustrative cases

C e ( ) O 5th August 19?1 Pensioner N (Ministry of Pens ons Hosp t l O p gton) d elop d tons ll t s with t mperature 10? F a apid pulse rate and p ostr t on The nsp t on of the th oat showed wh te memb ane on the tonsils nd f uces It was s ly d t ched but p dly refo m d Neither in the direct smear n r by culture method were d pht b ll fou d In th d e t smea mad at the b ds d a l rg number of *Cand da* cell we e found From cult r s on Löffler s m d m and gl cose ag a *Ca d d* was grown at 37 C d isolated in p re cultu e The p t ent made a good ecovery aft r us g a chlorine ga gle

Case (n) A Singhalese girl aged about 11 years was admitted to the Infectious Diseases Hospital in Colombo in 1910 with the diagnosis of diphtheria There were white patches on the tonsils uvula and soft palate The temperature was rather high (102 F) the pulse rate was fast and of low pressure There was some swelling at the angle of the jaw The child developed symptoms of broncho-pneumonia and died three days after admission Anti diphteria serum was given twice by the physician in charge of the hospital The microscopical and bacteriological examination of the patches for the Corynebacterium diphtheriae carried out with the usual technique of those days (Loffler s serum etc) remained negative Rod like bacteria were not seen in the specimens taken directly from the patches but numerous mycelial and conidial elements of a fungus were present On serum and glycerine agar media colonies of diphtheria were not found The fungus had all the biochemical characters of *Monilia tropicalis* Cast (= *Candida tropicalis*)

Prognosis — The prognosis is generally favourable but not invariably so In the case in Ceylon which I have quoted above the fungal infection spread to the bronchi and lungs and a severe mycotic broncho pneumonia developed which ended fatally

Diagnosis — This is based on the microscopical and cultural examination of the white patches which will reveal a large number of fungal elements generally in the form of budding yeast like bodies The condition is differentiated from diphteria by the presence of the fungus and the absence of the diphteria bacillus (*Coryn diphtheriae*) It must be kept in mind however that cases of mixed infection diphtheria plus mycosis are occasionally met with The condition must also be differentiated from Plaut Vincent s angina in tonsillomycosis spirochaetes are absent or extremely rare moreover in Plaut Vincent angina the membrane is usually of a dirty greyish colour rather than creamy white and if removed an ulcer will be seen frequently fairly deep in mycosis the removal of the mycotic membrane will ordinarily show only very superficial lesions

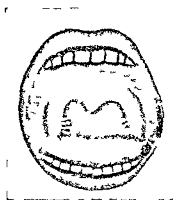
Treatment — Diluted tincture of iodine should be applied to the patches and a carbolic spray (1 per cent) may be used Potassium iodide may be given internally Recent experience seems to show that the simplest treatment is by applying Castellani s red paint Even if swallowed there is no danger of poisoning although the urine may become occasionally reddish

TONSILLOMYCOSIS SPINULOSA

(Tons llomycosis spiculata tonsilloo d omycosis *pro parte*)

Etiology — The microscopical and cultural examination of the spicules shows that they consist of fungi usually of the genus Geo *trichum* In several cases I have found *Geotrichum rotundatum* and *Geotrichum asteroides*

Symptomatology — On inspection of the tonsils numerous grey or greyish brown or whitish or pure white erect spicules sometimes



Tonsillomycosis spinulosa Semischematic drawing
The spicules have been magnified

in bundles several millimetres in length are seen usually originating *in the* crypts The condition which is not a common one runs a very chronic course The patient may complain of slight sore throat but the symptoms are seldom acute

Diagnosis — This is based on the microscopical and cultural investigation of the spicules

Treatment — The treatment consists of applying locally diluted tincture of iodine potassium iodide may be given internally The fuchsin paint seems to give good results

TONSILLOMYCOSIS FUSCA

On one of the tonsils occasionally somewhere else on the oral mucosa a rather large brownish or dirty greenish patch about ½ cm or more in diameter is seen which cannot be removed easily When forcibly removed a superficial ulcerated lesion remains The patch is composed of an enormous number of mycelial filaments of fungi of the genus *Geotrichum* e g *G rotundatum G rugosum (Hemispora rugosa)* The treatment is most difficult and may take many months to obtain a cure Tinct iodi and the fuchsin paint are on the whole the best local applications

«TEA TASTER S COUGH»

When I was in Ceylon a young assistant in one of the big Colombo firms a tea taster came to consult me about a chronic cough which he said had not yielded to ordinary treatment and had been suspected by several medical men to be of tuberculous origin He emphatically stated however that he did not believe the condition was *tuberculosis «I am merely suffering» he said «from tea taster s* cough» an expression I had never heard before The general condition of the patient was good and physical examination of the chest revealed only a few coarse rales The microscopic examination of the sputum was negative for tuberculosis instead I noticed microscopically some mycelial filaments and some yeast like bodies I inoculated several dextrose agar tubes and grew a monilia (candida) fungus which at the time I believed to be an endomyces

How did this patient become infected? Tea tasters in order to judge of the various qualities of the teas not only taste infusions but also often fill their hands with *the tea leaves and bury their noses* in them sniffing them up in this way a certain amount of tea dust enters the nasal cavities

Now if one examines tea dust in Ceylon one finds it contains fungi of the genus *Candida* constantly of the genera *Aspergillus* and *Penicillium* frequently and *of the genus Geotrichum occasionally* A peculiar streptococcus is also often present The same organisms

are not rarely found in the nasal cavities of tea tasters and when bronchial symptoms appear in them *Candida* fungi are present in the expectoration It is probable therefore that so called tea taster s cough is a candidiasis (moniliasis) especially since a guineapig in the nostrils of which I insufflated tea dust regularly for months died with symptoms of chronic broncho pneumonia

What I have said about «tea taster s cough» applies to a great extent to the so called «tea factory cough» For many years planters in Ceylon have noted that the coolies doing work in tea factories where the leaves are dried and there is a large amount of tea dust floating about after some months become weak lose flesh and often have a cough with mucopurulent expectoration The planters have found by experience that the coolies must be taken away from the factory and sent to work in the field then the symptoms slowly disappear I have examined some of the coolies and their expectoration practically always contained fungi of the genus *Candida* I have little doubt therefore that the so called «tea factory cough» is a bronchomycosis and probably a bronchomoniliasis (bronchocandidiasis)

BRONCHO SPIROCHAETOSIS

This disease was described by me long ago in Ceylon in local publications and also in the Lancet (Note on a Peculiar Form of Haemoptysis with Presence of Numerous Spirochaetes in the Expectoration Lancet 1906 May 19 p 1384) and the British Medical Journal (Broncho Spirochaetosis September 18 1909) An account of it may be found in Castellani & Chalmers Manual of Tropical Medicine (London 1919) and in my Manual of African Diseases (Rome 1947) It has been thoroughly investigated in Italy by Cannavo Iacono and others in France by Violle and in Switzerland by Galli Valerio The patient has a chronic cough and from time to time brings up sputum tinged with blood The general condition of health however is usually fairly good but the patient worries a great deal as very often tuberculosis is suspected by the medical attendant The diagnosis is based on the absence of *My tuberculosis* and fungi and the presence of *Spirochaeta bronchialis* Cast a polymorphic organism which differs from the usual spirochaetes of the

mouth type Vincent etc in becoming dissolved or transformed *into numerous small granules* a few minutes after expectoration *while the* ordinary buccal spirochaetes of *type Vincent etc remain unchanged for hours in the* sputum Arsenic tartar emetic potassium iodide and *penicillin* are useful *It* is interesting to note that this disease which was very prevalent after the First World War *is* now *rarely* met with An excellent very complete monograph on it was published by Cannavo (Letterio Cannavo La Broncospirochetosi di Castellani *Casa Editrice Salpietra Palermo 1937)*

TROPICAL ABDOMEN

(Tropical Colon «Tropical Tummy»)

(Little known tropical intestinal dyspepsias and diarrhoeas)

It may be said with truth that in many tropical countries a large number of European residents particularly old residents seldom feel to use a popular expression «quite right inside» In most cases there are no symptoms pointing to any definite intestinal illness there is merely a most constant feeling of slight abdominal discomfort not *amounting to real pain and there is the consciousness* that the slightest indescretion with regard to food and drink will bring about an attack of severe abdominal trouble In many cases the stools are not formed in some cases there is constipation *This condition is in some cases* a sequela of a definite intestinal disease such as dysentery either amoebic or bacillary In some instances it is the manifestation of an intestinal infection which is dormant or semi dormant especially with organisms of the metadysentery group

I should like to call attention to the desirability of investigating forms of vague intestinal conditions which are known by local names and about which very *little is known* I may mention as an example «Gyppy tummy» Anybody who has been in Egypt knows the term which of course like every other popular term is applied to many different conditions but principally to *the type of intestinal dyspepsia* with abdominal discomfort and occasional attacks of diarrhoea which are seldom if ever dysenteric

During the period 1930 1940 in London five patients came to consult me after a prolonged residence in Egypt suffering from what they called «Gyppy tummy» The bacteriological examinations proved them to be suffering from the colitis I have described in a series of publications as due to bacilli of the metadysentery group (viz. *ceylonensis A = sonnei ceylonensis B madampensis*) I have found the same infection in a patient who came from the northern mountainous regions of India and who told me he was suffering from «Himalaya trots»

MOTOR BICYCLE RIDER S ABDOMEN»

A description of this condition was given by me in my book Malattie dell Africa Rome 1947 In Africa especially in Ethiopia and as a matter of fact also in Europe and America I have noticed in men who have to ride a motor bicycle for hundreds of miles such as road policemen — the following symptoms the patient is in good general health but complains of abdominal discomfort after a long ride The physical examination reveals nothing abnormal and liver and spleen are not dropped In one case I found a floating kidney The X ray examination revealed however in many cases a colon which had a much lower position than normal

If the patient is kept at rest for two or three days the abdominal discomfort disappears and the patient may have no further trouble In some cases however the discomfort starts again as soon as the patient resumes his work and may get worse and worse with severe pain and in these cases the patient must be given another job

Somewhat similar symptoms are found at times in tank troops The wearing of an elastic «sport belt» is useful

POLYPHLEBITIS TROPICALIS

This condition described by me long ago in several papers among which one on «Minor Tropical Diseases» (Trans Royal Society of Tropical Medicine Vol 24 p 394 1930) begins with one or several of the superficial veins of the legs or arms becoming

turgid very hard but not knotty and painful reddish sinuous lines may be occasionally seen on the skin diffuse redness is usually absent After two or three days a perivascular oedematous condition may develop and the veins are no longer visible or palpable There may be some temperature but this as a rule is not very high The lymphatic glands are not enlarged or painful Within a few days or possibly several weeks all the symptoms disappear but after a variable period of time another vein — or several other veins — are affected becoming very hard and swollen and oedema of the region may develop The

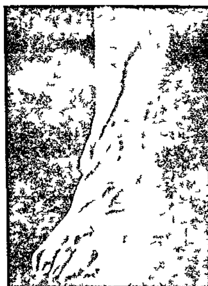


Polyphlebitis tropicalis

oedema is somewhat localized and seems to be due to periphlebitic inflammation The attack will soon disappear but after a few days weeks or even months yet another vein becomes affected or several veins become affected and so on for years Varicose veins never develop In some cases an ulcerative stage develops after several years the ulcers appearing on the feet in most cases An infiltrated red patch appears which slowly ulcerates the ulcer is shallow and takes a long time to heal In an old case the foot may show active ulcers ulcers in the process of healing and scar and hyperpigmented patches at one and the same time The ulcers are never deep I have known this condition to be mistaken for lupus of the extremities

ILLUSTRATIVE CASE

Mr E A T R du ng th F rst Wo ld War in Salon ca had a somewhat pecul a fever wh ch was va ously d agnos d as mal r a relapsing f ver pa a typho d etc Soon afterw ds a ve n n the l g and one in the arm became swollen and pa nful there wa th app ently no fev The attack d sappea ed w th n f e weeks but after fou months othe ve ns b me ff cted The s cond ttack



Polyphlebitis trop cal s

l o d sappea ed but a f w months l te aga n other ve ns b ame nvolved In 1926 shallow supe f c al and v y pa nf l ul e s d eloped on the dorsum of both feet wh ch on heal ng left hype p gm nt d sca s and on s of hyp p gm nt t on Th pat ent onsult d me n 1928 and I had h m d n tted into the Ross Hosp tal where h ema ned for som weeks H w s eadmitt d nto the ho p tal n October of the sam year and wh l n hosp tal h d veral attacks one or several v ns becom g affected th ve s becoming turg d hard and p nf l b t n t knotty and u u lly a z ne of oede natous nf ltr t o develop d ound them the reg on b comes swollen and th veins a e no l ng v s ble o palpabl The oedem seems to be d e to a p oc ss of pe phleb tis and not to thrombos s of th vein Usu lly there

is no fever previous to the attack or at the commencement or during the attack The general condition of health is good no sign of varicose veins nothing abnormal with regard to the thoracic or abdominal organs urine normal microscopical blood examinations *repeated many times both* at night and during the day failed to reveal any parasites haemocultures negative Wassermann negative red cells 4 6000 000 hb 80 per cent colour index 1 white blood cells 6 800 no abnormal cells or parasites polymorphonuclears 69 per cent large monoculears 2 per cent lymphocytes 27 per cent basophils 2 per cent

A case practically identical with this was described by Scotti in Lybia *in 1942 In his case* however ulcerative lesions were not pre sent He wrote an excellent paper on it («Polifiebite del Castellani» *Riforma Medica No 20 1941*)

Etiology — The condition is not of filarial origin the blood examined at night and during the day being always negative for microfilariae It is not of streptococcal origin I have never been able to isolate any streptococci or any other germs from the blood of *the general circulation It is not of luetic origin* Wassermann being always negative In the open sores in the ulcerative stage various organisms may be found but none has proved to be aetiologically connected with the condition In one case I found an actinomyces but I could not prove that it played any part in the aetiology of the condition The disease is in no way connected with ordinary phlebitis and varicose veins and differs from the type of phlebitis described as «*Phlebitis migrans*» which is of syphilitic origin and characterized by the presence of multiple spindle shaped swellings about one inch in length which develop along the course of the vein

Treatment — This is very unsatisfactory Complete rest is essen tial The salycilates and iodides seem to be useful and during the quiescent stage protein shock therapy occasionally appears to give fairly good results Fibrolysin given *by intramuscular injection seems* to be useful During the actual attacks local *applications of diluted* liquor plumbi and tr *opii are* very soothing The shallow ulcerative lesions found *in the later stages* on the foot are best treated at first with mild antiseptic lotions and later with ichthyol one drachm to the ounce of distilled water (4 grams to 30 grams of distilled water)

In a recent case sulphonamides and various antibiotics were administered The most useful antibiotics appeared to be chloromy cetin and aureomycin A complete cure however was not achieved

FEBRILE HEPATOSPLENOMEGALY OF ADULTS WITH ARTHRITIS

This rare disease was described by me in 1935 (Note on a Peculiar Febrile Hepatosplenomegaly with Arthritis Journ of Trop Med & Hyg Vol XXXVIII 229 1935) It was further investigated by myself and Girolami and a fairly complete paper by us on it appeared in the *Policlinico* (Sezione Practica) Vol XLIX 1947 and Semaine des Hopiteaux 26 April 1954 giving also the morbid ana tomy and histopathology of the malady I have also given a description of it in my Manual of African Diseases Rome 1947 The disease runs a chronic course (several years) and presents the following characteristic triad fever usually intermittent and not very high long afebrile periods second hepatosplenomegaly third arthritis The fever may be absent for long periods The liver is at first enlarged and then cirrotic The spleen is greatly enlarged and hard In the last stage ascites may develop

The origin is absolutely unknown all the laboratory examinations for syphilis kalazar undulant fever etc have been negative The prognosis is very serious all the cases I have studied having ended fatally with the exception of one who is still alive

Diagnosis — The condition must be differentiated chiefly from Still s disease known also as infantile arthritis with polyadenitis Still s Disease affects only children The spleen and liver are not much enlarged and the superficial lymphatic glands are hypertrophic It may be interesting to quote part of the original Still description («On a Form of Chronic Joint Disease in Children» Medico Chir Society Transactions Vol LXXX 47 60 1897) «In nine out of eleven cases the spleen was enlarged the edge of the spleen being felt 1 2 fingers bretdth below the costal margin The liver was usually of normal size The superficial lymphatic glands were markedly enlar ged The disease is not in itself fatal and the few deaths that were

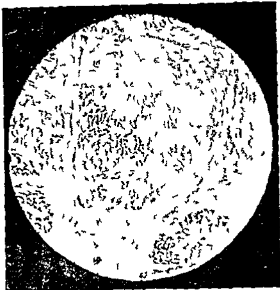
Portion of the temperature chart of a case of hepatosplenomegaly with arthritis

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Case of hepatosplenomegaly with arthritis X ray photograph of foot

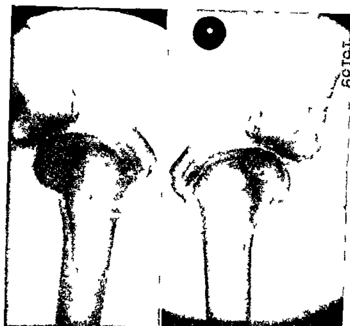


Case of hepatosplenomegaly with arthritis pneumoperitoneum
Note greatly enlarged spleen and *irregular* outline of liver



Case of hepatosplenomegaly with arthritis
histological section of liver — Note fibrosis

recorded were due to complications» There can be little doubt therefore that the febrile hepatosplenomegaly with arthritis of adults described by me is a different pathological condition from Still s Disease



Case of hepatosplenomegaly with arthritis X ray photograph of knees

FAMINE DIARRHOEA

This condition has been observed in India during periods of famine and by me in the Balkans in Serbian and Montenegrin troops after the retreat through Albania (Ist World War)

Actual starvation or bad greatly insufficient food lacking in protein fat and vitamins and extreme fatigue play a very important role in the causation No specific germ has been found

The patient is extremely weak and terribly wasted though the abdomen may at times be prominent and distended He may feel

famished but when given food can take very little of it and cannot digest it He complains of slight abdominal pains and has diarrhoea the motions may not be very numerous they are liquid of faecaloid or at times of greenish colour with some mucus but no blood The condition lasts usually between a couple of weeks and one to two months and very often terminates fatally

The diagnosis is based on the history of starvation and extreme fatigue with diarrhoea without blood while the patient wastes horribly



A case of famine diarrhoea Note extreme emaciation

in a short time and there are no signs of tuberculosis It may be differentiated from dysentery by the stools not containing blood and by the absence of dysenteric germs from cholera by the longer course and absence of cholera and paracholera germs

The prognosis is very serious most cases terminating fatally

The treatment is very unsatisfactory Astringents such as bismuth subnitrate etc even when given in massive doses may not

stop the diarrohea at times they may check it but the patient continues to waste glucose injections are useful but not curative

BRONCHO MONILIASIS
(Broncho candidiasis)

The term broncho moniliasis (broncho candidiasis) is used in practice *sensu lato* to denote not only bronchitis of monilial origin but also involvement of the lung of the same origin

Synonyms — Broncho alveolar moniliasis Broncho blastomycosis *pro parte*

Historical — This affection both the *primary type and the much* more frequent secondary type was first described by me in Ceylon My researches were soon confirmed by Pijper Pantin Magrou and many others Recently a great deal of work has been carried out on the subject by Iacono Girolami Cannavo Urso Stovall and Greely Miale Martin Th Thyotta and Knut Urdal and others

Geographical Distribution — This disease is common in many parts of the Tropics and Subtropics and is found fairly frequently in many parts of the temperate zone and has been reported also from cold countries (Scandinavia)

It occur in Portugal where during the last six years I have come across four cases of the primary type and quite a number of the secondary type

Aetiology — The disease is caused by fungi of the genus *Candida* Berkhout 1925 corresponding to the old medical genus *Monilia (Auctores)*

Recently doubts have been cast on the validity of the genus *Candida* but from a practical point of view I think that it is advisable for the time being not to change the nomenclature

According to many authorities the genus *Candida* belongs to the Sub family Candidiodeae Family Torulopsidaceae (*Order Blasto*

porales Class Fungi Imperfecti Superclass Eumycetes Subphylum Mycetes Phylum Thallophyta) For simplicity I have retained it in the family Oosporaceae Saccardo 1886

These fungi appear in the lesions and in cultures under the form chiefly of free roundish or ovaloid budding cells usually about 4 5 μ in diameter with little mycelium or to be more correct pseudomycelium composed of elongated cells produced by budding The cells become easily separated from each other Reproduction by blastospores Asci absent Their classification cannot be based simply on morphological characters but physiological characters and especially fermentative characters have to be taken into account With regard to the fermentative characters importance is given to the production or non production of gas not mere acidity

The chief species of the genus are the following *C albicans* (with several varieties *C albicans* var *candidans* *C albicans* var *pinoyi* *C albicans* var *metalondinensis* *C albicans* var *triadis* and *C albicans* var *stellatoidea)* *C krusei* *C tropicalis* *C pseudotropicalis* *C guillermondi* *C bronchialis* *C rhoi* *C macedoniensis* In *C macedoniensis* according to some authors among whom H A Diddens and J Lodder asci are present and by these authors it has been removed from the genus *Candida* and placed in the genus *Saccharomyces* Meyen

Serologically according to the work done on the subject by myself and Mackenzie Douglas it would appear that by the results of agglutination and absorption tests several serological groups may be distinguished The first group contains *Candida albicans* and its varieties and also *C tropicalis* the second group contains *C pseudotropicalis* the third group contains *Candida macedoniensis* and its varieties and the fourth group contains *C krusei* For the differentiation and classification of the species of the genus *Candida* many other laboratory methods have been employed among which the carbohydrate utilization test Castellani s absorption test the precipitin — absorpiton test

Mode of Infection — The infection may take place from man to man by droplets of sputum and also probably from the fungi living saprophytically in nature and their spores being found in the air

Table of the chief species of the genus *Candida*

Species of Candida	Glucose	Levulose	Maltose	Galactose	Saccharose	Lactose	Inulin	Remarks
Candida zeylanoides Cast 1916	O	O	O	O	O	O	O	Colonies smooth white occasionally light yellowish
Candida zeylanica Cast 1910	O	O	O	O	O	O	O	Smooth yellowish colonies Milk clotted Several sugars acidified
Candida zeylanoides var *lipolytica* Harrison 1928	O	O	O	O	O	O	O	Colonies crinkled often slightly yellowish gelatine liquefied rapidly Milk clotted
Candida krusei Cast 1909	G	G	O	O	O	O	O	*Dry granular colonies cells often ovaloid or* elongated
Candida parakrusei Cast 1912	G	G	O	O	O	O	O	Smooth colonies cells usually roundish
C. albicans Robin 1853 var *stellatoidea* (Jones & Martin)	G	G	G	O	O	O	O	Smooth stellate colonies on blood agar milk not clotted
C albicans Robin 1853 var *pinoyi* Cast 1916	G	G	G	O	O	O	O	Smooth colonies milk not clotted
C. albicans Robin 1853 var *metalondinensis* Cast 1916	G	G	G	G	O	O	O	Smooth colonies milk not clotted
C. albicans Robin 1853 var *albicans* (Cast 1919) Brumpt 1937	G	G	G	G	O	O	O	Smooth creamy colonies milk clotted (See Brumpts Précis de Parasitologie 1937 p 1269)
C. albicans Robin 1853 *var triadis* Langeron and Talice 1932	G	G	G	O	O	O	O	*Differs from var pinoyi in forming pellicle in* peptone water
C. tropicalis Cast 1909	G	G	G	G	G	O	O	Smooth colonies rarely rough strains are found which usually after a time become smooth
Candida guilliermondi Cast 1910	G	G	O	O	G	O	O	Smooth colonies cells small
Candida pseudotropicalis Cast 1910	G	O	O	G	O	G	O	Smooth colonies
Candida macedoniensis Cast. 1917	G	G	O	G	G	O	G	Smooth colonies Diddens and Lodder having *found asci consider the fungus a saccharo*myces
C. bronchialis Cast 1910	G	G	G	O	G	O	O	Smooth colonies
C. rhoi Cast 1909	G	G	O	G	G	O	O	Smooth colonies

O = Negative result viz absence of gas G = Presence of gas Cultures of the species mentioned in the table are available excepting *C bronchialis* and *C rhoi*

The infection takes place frequently by inhalation of dust containing virulent candidae Fungi of the genus *Candida* are extremely common in Ceylon in tea dust and it is practically certain that the so called «tea factory cough» is a type of Moniliasis (Candidiasis) My old researches on the experimental reproduction of broncho moniliasis by inhalation have been confirmed and greatly enlarged recently by Urso Some persons harbour candidae in the mouth and throat and in these individuals bronchomoniliasis may develop after a chill or any cause decreasing the natural power of resistance of the host T W Keiper has found that in California about 3 per cent of normal individuals harbour candidae in the throat and in our experience it is quite easy to find candidae in scrapings from the back of the tongue in a large number of normal subjects Some observers go so far as to say that pathogenic candidae are always present in the human oral cavity The infection therefore in some cases may be endogenous

Pathology and Morbid Anatomy — Little is know as comparatively few autopsies have been recorded It would appear that in some cases a nodular condition of the lungs is found suggesting miliary tuberculosis in these cases the histological examination of the nodules show to a certain extent the structure of true tubercle with giant cells but no tuberculosis bacilli are seen instead delicate yeast like organisms are present In other cases bronchiectasiae and cavities and large ones of consolidation have been noted in a few cases no gross lesions have been found

In the post mortem held two hours after death of a case described by J W Flinn R S Flinn and Z M Flinn in which *Candida albicans* var *pinoyi* had been found in the sputum during life the longitudinal sinus and the meningeal vessels appeared engorged with blood The surface of the brain was markedly congested and here and there numerous small white masses were seen which microscopically consisted of yeast like cells On section of the brain all vessels appeared congested and the fluids in lateral sinuses was increased The pleura of the right lung was thickened and was adherent at intervals over the entire lung surface producing a series of pockets which however contained no fluid In the left lung the pleura was thickened and the pleural cavity contained about 1 000 c c of fluid

In the upper lobe of the left lung areas of incomplete consolidation were present No gross changes were seen in the lower lobe The bronchi were slightly dilated and presented the appearance of mild bronchiectasis The bronchial glands were not enlarged and showed no pathological change In the heart no gross changes were found The liver and spleen showed passive hyperaemia

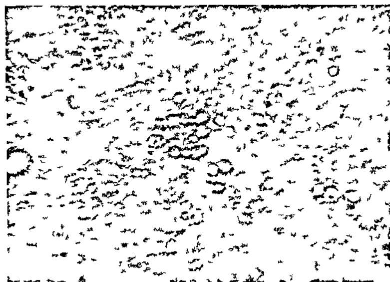
Cultures were made from the small white lesion on the brain surface from the choroid plexus from the left pleural space and from pneumonic areas in both upper lobes Without exception all cultures yielded a growth of *Candida pinoyi* (= *C albicans* var *pinoyi*) which upon injection into the pulmonary tissue of rabbits produced characteristic granulomatous nodules Cultures of these nodules yielded the same fungus

Symptomatology — A mild and severe type of the malady may be distinguished In the *mild type* the general condition of the patient is fairly good there is no fever and he simply complains of cough The expectoration is muco purulent and very often scanty and no blood can be seen The physical examination of the chest will reveal only a few coarse rales or absolutely nothing The condition may last several weeks or months and may get cured spontaneously o continuing may turn into the severe type The *severe type* closely resembles phthisis the patient becomes emaciated there is hectic fever muco purulent and bloody expectoration In several cases the sputum has a peculiar beer yeast odour Occasionally true haemoptysis occurs a teaspoonful of bright blood being spat up at a time The physical examination of the chest may show patches of dulness fine crepitations and pleural rubbing This type is often fatal Between *these two extreme* types there are of course cases of intermediate severity apyretic or with subcontinuous and continuous fever and more or less marked bronchial and broncho alveolar symptoms

In mild cases roentgenograms of the chest usually show only a slight *increase in the* broncho vascular marking over the lower lung fields In cases of severe type a very *definite generali ed increase in* the basal linear markings is noted with at times a moderate infiltra*tion in the lung* parenchyma usually in the midle or lower portions of the lung fields In most cases the apices are relatively clear although occasionally a ha y infiltration not unlike that of tuber

culosis may be seen extending well into an apex Intrabronchial injection of lipiodol may reveal presence of small bronchiectases in some cases

An asthmatic type has been described (R S Flin A Castellani and very recently B Urso) and exceptionally a generalized septico pyemic type has been observed in which the fungus enters the general circulation producing abscesses in the skin and internal organs



Sputum in a case of bronchomoniliasis (Bronchocandidiasis)
Note roundish bodies some budding

Complications — Thrush is occasionally seen Pleurisy and empyema may develop Meningitis may occur but is very rare In exceptional cases as stated the *Candida* infection may become generalized with formation of multiple abscesses in the skin and internal organs Endocarditis due to *Candida* has been described

Mixed Infections — Cases of tuberculosis and moniliasis are not rare In these cases the *Candida* is usually a secondary invader but

exceptionally it may be the primary causative factor the tubercular infection becoming engrafted on a chronic moniliasis

Cases of mixed infection, spirochaetosis and moniliasis, have been observed

According to Marett persons suffering from candidiasis if left untreated are very susceptible to pulmonary tuberculosis In his experience the prognosis of a mixed infection moniliasis and tuberculosis is much more seriou than that of tuberculosis alone

Diagnosis — In practice the diagnosis of Broncho moniliasis is based on constantly finding the fungus in the sputum while the tuberculosis bacillus *(Mycobacterium tuberculosis)* is constantly absent It is absolutely necessary that the sputum should be collected in sterile petri dishes or some other sterile receptacle and examined as soon as possible as sputum exposed to the air becomes contaminated with all sorts of fungi especially in the tropics In fresh preparations of the expectoration spore like roundish or oval cells 4 to 6μ in diameter some budding are seen often presenting a delicate not well marked double contour Some mycelial (more correctly pseudomycelial) particles maybe present The fungus is Gram positive not acidfast

The finding of candida in the sputum even if the sputum has been collected aseptically, should never be considered as sufficient ground for the diagnosis of primary moniliasis (candidiasis) as the fungus may play merely a saprophytic role The diagnosis of primary Broncho moniliasis should be made only when the fungus as stated is constantly present in the sputum is pathogenic to rabbits by intra pulmonary injection while tuberculosis has been excluded by the absence of the tuberculosis bacillus microscopically and negative guinea pig inoculations broncho spirochaetosis by the absence of spirochaetes paragonimiasis by the absence of the typical eggs actinomycosis and pseudoactinomycosis by the absence of *Actinomyces* and actinomyces like fungi blastomycosis by the absence of the so called *Blastomycoides* group of fungi cancer by the physical and X ray examination

To identify the fungus cultural researches are necessary A particle of the sputum is smeared on maltose or glucose agar plates after two or three days white rather large roundish colonies appear easily distinguishable even macroscopically with a little practice from the

colonies of cocci and other bacteria The fungus colonies are further investigated by inoculating maltose agar ordinary agar gelatine serum and a set of sugar peptonwaters All the species of *Candida (Monilia)* found in our cases grow well on ordinary agar but much more abundantly on maltose and glucose agar especially if slightly acid On these media the growth which is generally white with a smooth surface when young slightly crinkled when old is composed practically of globular yeast like cells while in the water of condensation globular cells and mycelial elements are found togethe A little mycelium (pseudo mycelium) may however be found also occasionally in the growth All species of candida grow fairly well on coagulated serum but some later on induce a peculiar brownish black discoloration of the medium round the growth Most species do not liquefy the medium

On *gelatine* all the species grow fairly well a few produce liquefaction of this medium In milk some do not produce either acid or clot others produce a temporary or permanent acidity others clot the milk or peptoni e it The reactions in the various sugar peptone waters are important and in association with the behaviour of the fungi on serum gelatine and milk give the practical data on which to differentiate the various species although many other laboratory methods can be carried out

Agglutination Test — The patient s blood contains agglutins for the infective monilia but very often the agglutination is not specific

Complement Fixation Test — This may be carried out using as antigen cultures of the fungus

Cuti reactions — Various cuti reactions have been introduced (scratch intradermic subcutaneous patch) using killed cultures of monilias and filtrates In practice they are not of much importance

Differential Diagnosis — Primary Broncho candidiasis as described here should be distinguished from the secondary Broncho candidiasis not rarely met with in chachetic patients suffering from cancer diabetes tuberculosis etc In such cases there is often thrush of the oral mucosa and the thrush fungus spreads to the pharynx

larynx and bronchial mucosa while in primary broncho candidiasis *the oral mucosa is not, as a rule affected*

From pulmonary tuberculosis the condition is distinguished by the absence of the tubercle bacillus in the sputum by the clear apices in the roentgenogram although *there are exceptions* and by the negative animal inoculations Cases of mixed infection however — tuberculosis and moniliasis — are occasionally met with the sputum containing both the tubercle bacillus and the Candida fungi

From Broncho spirochaetosis it is recognized by *the absence of spirochaetes though occasionally cases of mixed infection occur* from endemic haemoptysis by the absence of the ova of *Paragonimus ringeri* Cobbold From the various types of pulmonary «blastomycosis» by the absence of fungi of the *Blastomyces Torulopsis Coccidiodes Paracoccidiodes* type from pulmonary aspergillosis penicilliosis sporotrichosis and actinomycosis by the absence of fungi of the genera *Aspergillus Penicillium Sporotrichum Actinomyces*

Prognosis — The cases of a mild type may recover spontaneously or under appropriate treatment Those of the severe type often end fatally

Treatment — Mild cases and those of medium gravity respond often to potassium iodide (10 to 30 grains) given well diluted in water or milk three times daily When potassium iodide causes severe symptoms of iodism saiodin in the same doses (in cachets) may be administred or collosol iodine 2 to 3 drachms *in water t d* In the cases of the severe type we have seldom seen an improvement from the many different treatments administered Potassium iodide *however* should always be tried also in the e cases as well as balsamics

Sodium iodide may be given intravenously 5 to 10 c c of a 10 per cent olution once or *twice daily*

Intratracheal injection of lipiodol oil or some other iodized oil has been used occasionally with benefit *Candida* vaccines have been praised but we have seldom seen any good results from them

Calcium seems to be useful in some cases especially if associated with parathyroid therapy In mild cases we often prescribe Parke Davis tablets of parathyroid and calcium one to two three times

daily In severe cases calcium is given intravenously using a 10 per cent solution of calcium chloride 5 c c daily for periods of eight days Calcium gluconate may be given in a 10 per cent solution 5 to 10 c c either intravenously or intramuscularly

Various preparations of hypophosphites or glycerophosphites may be prescribed to try to keep up the patient s strength Syrup calcii hypophosphitis (B P C) 1 to 2 teaspoonsfuls twice daily in a little water seems to be useful

Vitaminic preparations have been praised but are of very little use except as a tonic

Creosote may be given in capsules 2 to 10 drops daily Guaiacol may be given by the mouth in 5 drop doses In a few cases we have tried Durante s injection the formula of which is guaiacol 5 parts iodine 1 part potassium iodide 10 parts sterile olive oil 100 parts The dosage is one to five c c intramuscularly The injection is painful Guaiacol carbonate (duotal) may be given in 0 30 to 1 gram doses in cachets

Sulphonamides — These have little or no action but may be tried Sulphadia ine is the best preparation 1 tablet (gram 0 50) every three hours

Antibiotics — Penicillin does not appear to have any beneficial effect Of the newer antibiotics Aureomycin is useful although it cannot be considered a specific drug

BRONCO GEOTRICHOSIS

(Broncho-O dios s)

Synonyms — Bronchial oidiomycosis Broncho endomycosis

History — Cases have been described by Blanchard Chante messe and Vidal Linossier Pinoy Castellani O de Magalhaes and others in various parts of the Tropics and also in the Temperate Zone

Etiology — The causative fungi belong to the genus *Geotrichum* Link 1809 *(Oidium Auctores)* Following Langeron I place in the

genus only those fungi which reproduce solely by arthrospores without those in which more or less typical blastospores are present in addition to arthrospores wich have been placed in the genus Geotricoides of Langeron and Talice 1932 They may produce acidity in various sugars and other carbohydrates but never gas The principal species ~~which~~ capable of producing bronchitis and broncho alveolitis are *Geotrichum candidum* Link *1809* (=*Oidium lactis* Fresenius 1850) *Geotrichum rotundatum* Castellani 1911 (=*Oidium rotundatum* Castellani) *Geotrichum asteroides* Castellani 1914 (=*Oidium asteroides* Castellani) *Geotrichum matalense* Castellani 1915 (=*Oidium matalense* Castellani) *Geotrichum rugosum* Castellani 1910 (=*Hemispora rugosa* Castellani 1910) *Geotrichum pararugosum* Castellani Douglas and Thompson) The last is merely a variant of *rugosum*

Some fungi which used to be placed in the genus *Geotrichum* by several authors but which present blastospores in addition to arthrospores have been removed by Langeron Brumpt & others from that genus and placed in the genus *Geotrichoides* Langeron & Talice 1932

Among these fungi a species of great interest is *G brasiliense* O de Magalhaes 1917 which is extremely virulent and when inoculated into the lower animals always localizes itself in the lungs *whatever route of inoculation is used — subcutaneous intravenous* or intrapulmonary In laboratory animals the smearing of a culture of this fungus on the oral mucosa causes pulmonary pseudo tuberculosis the fungus apparently being absorbed through the tonsils It has recently been identified with *Geotrichoides cutaneum*

Symptomatology — The symptoms are very similar to those seen in broncho moniliasis *and a severe type and a mild type of the* affection may be distinguished In the *mild* type the general condition of the patient is good there is no fever and he simply complains *of cough The* expectoration is muco purulent and does not contain blood The physical examination of the chest is negative or reveals only a few rales The severe type closely resembles phthisis The patient becomes emaciated there is hectic fever and the expectoration may be haemorrhagic *The physical* examination may reveal patches of dulness fine crepitations pleural rubbing

Complications — The affection may be complicated with a tonsillitis caused by the same fungi and characteri ed by the presence of yellowish or greyish patches at other times the tonsillitis is the primary lesion

Diagnosis — The diagnosis is based on finding in the sputum fungi with the characters of *Geotrichum* a genus characterized by complete absence of spores excepting arthrospores and almost com plete absence of serial mycelium in cultures In the sputum and in cultures typical yeast — like cells are not seen but only mycelial articles and segments of articles (arthrospores)

Prognosis — This is very serious in the severe form and practi cally hopeless when the condition is caused by *Geotrichum brasi liense* C de Magalhaes which however is not a true geotrichum — It must be remembered that primary geotrichosis is rare

Treatment — Potassium iodide should be given in large doses

BRONCHO SPOROTRICHOSIS

The term *broncho sporotrichosis* — is used to denote any affec tio nof the bronchi and lungs due to fungi of the genus *Sporo trichum* Link 1809 These fungi in practice may be defined as Fungi Imperfecti of the order Conidiosporales characteri ed by the conidio phores being practically undifferentiated from the ordinary hyphae and the presence of terminal loose clusters of conidia («bouquets» of French authors) as well as of numerous lateral conidia born on pedicelli These latter conidia fall out rapidly and the fertile hypha remaining with the pedicelli takes on the aspect of a «rasp» (radula) hence these conidia are referred to as radulospores

The best known species according to some authorities, the only human species, is *Sporotri hum shenki* of which a short description is herewith given

Sporotrichum shenki (Hektoen and Perkins 1900) (=*Sporotri chum schenki beurmanni* Auctores)

Synonims — *Sporothrix schenki* Hektoen and Perkins 1900 *Rhinocladium beurmanni* Verdun 1913 *Sporotrichum beurmanni* Matruchot and Ramond 1905 *Sporotrichopsis beurmanni* Guéguen 1911 *Rhinotrichum beurmanni* Ota 1928

Discovered by Schenk in a case of gummatous lymphangitis in 1896 in North America Completely investigated by Ektoen and Perkins who called the organism *Sporothrix schenki* Found later by de Beurmann in France and completely investigated by himself and Ramond Gougerot Dor Sicard Pinoy etc in that country by Adamson in England by Lutz and Splendore in South America by Carougeau in Madagascar etc It was believed at one time that the fungus found by de Beurmann in France was a separate species differing from *S schenki* in the more abundant conidia in the colonies always becoming black in not acidifying lactose while acidifying saccharose The researches of Davis and many others have clearly shown that these differential characters are very inconstant as quite a number of American strains produce dark pigmentation show abundant conidia and acidify saccharose and not lactose

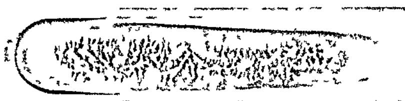
Parasitic Life — In the tissues oval yeast like or short bacillary forms are seen 3 5 μ in breadth free or engulfed by phagocytes Pinoy has described some minute oval forms of the shape and size of piroplasmata inside the macrophages In a case of general infection he has made the important observation that typical fructifications may be seen in the blood capillaries

Cultures — The best media are Sabourand s maltose agar and glucose agar The growth begins to appear between the fourth and the twelfth day Optimum temperature is 22 C but grows well also at 30 to 38 C The growth may be whitish at first but soon becomes completely black or of a brownish chocolate like colour The surface is irregular or cerebriform Glucose gelatine is slowly liquefied Serum usually is not liquefied Mycelial threads about 2 μ in diameter rather straight but may be bent curved or undulating Conidia oval 5 6 μ in length and 3 μ in breadth supported by very short sterigmata The conidia may be extremely numerous and are collected in lateral and terminal clusters at times form cylindric masses 10 μ in diameter Chlamydospores may be present in large numbers when the fungus

is grown on poor media Glucose levulose maltose galactose glycerol and inulin are acidified Some strains acidify saccharose not lactose others lactose not saccharose

Pathogenicity — Is the cause of by far the greatest number of cases of sporotrichosis in Europe and America Is very pathogenic to rats and mice and also to monkeys It has been found by Beurmann and Gougerot living saprophytically on vegetables and grains

Benham and Kest (1932) have shown that inoculating experimentally certain carnations and rose plants with this fungus they show signs of disease and decay in practically the same manner as when they are naturally infected with *Sporotrichum poae* The same



Sporotrichum anglicum Cast. Glucose agar culture 15 days old

authors have demonstrated that *Sporotrichum poae* as well as *Sporotrichum pruinosum* found in the soil are not pathogenic to laboratory animals Catanei in 1929 has shown that a saprophytic species of *Sporotrichum* isolated from the water of a well in Algeria by Beguet close to *S biparasiticum* Bubak 1906 may be pathogenic to the rabbit guinea pig white mice and monkeys when experimentally inoculated

Sporotrichum shenki apparently has not much tendency to invade the respiratory system as it is rather exceptional to find the bronchi and lungs affected in cases of cutaneous sporotrichosis and primary *broncho sporotrichosis* due to it is extremely rare and I have never seen a case of it and as far I know no case of it has been placed on record

In all my cases of Broncho sporotrichosis the fungus found was a totally different one which I called *Sporotrichum anglicum* Cast

It differs from *Sporotrichum shenki* in never becoming pigmented and in producing gasfermentation of glucose and several other sugars

A short description of *Sporotricum anglicum* is herewith given —

In the sputum it appears under the form of yeast like cells and short mycelial articles and also filaments but no «bouquets» Gram positive

Cultures — The fungus grows easily on glucose agar and all the usual laboratory media On glucose agar the growth is of a white or greyish colour occanionally with a yellowish tone and shows a slightly rugose or wrinkled surface at times rather moist covered with very short white duvet On ordinary agar prepared with broth the growth is rather scanty Dextrine agar cultures are very similar in appearance to agar cultures On soluble starch agar the growth is abundant and very similar to the growth on glucose agar On potato the fungus grows well and the colony shows a white somewhat chalky surface Carrot cultures are very similar to potato cultures having a white chalky appearance On coagulated serum there is abundant growth whitish with at times a greenish tinge no liquefaction

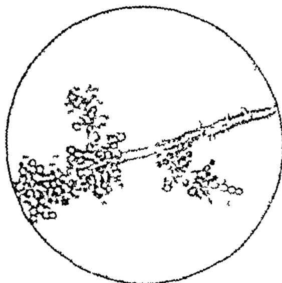
When a glucose agar plate is inoculated from a sugar peptone water culture colonies develop which have a tendency to remain separate and their surface often shows spicules

Hanging Drop cultures — In hanging drop cultures the mycelium is abundant Conidia numerous lateral or in terminal clusters *Conidia mostly borne on minute pedicella* and numerous lateral denticles can be seen on some hyphae The conidia are generally of oval shape averaging 4 6×3 5 μ but some conidia may have a maximum longitudinal diameter of 7 μ and others a maximum longitudinal diameter of only 3 μ The mycelial hyphae are about 3 μ in diameter but some may be as much as 4 μ and *others as little as 2 μ in diameter*

Biochemical Characters — No liquefaction of gelatine or serum Milk not coagulated generally rendered alkaline The fungus produces acidity and gas in glucose and several other sugars Both strains kept in my collection have the same fermentative reactions producing acid and gas in glucose levulose maltose and saccharose and not

gas fermenting mannite galactose rhamnose inositol adonitol arabinose amygdalin salicin sorbitol dextrine erythrytol xylose arbutin starches Does not liquefy serum or gelatine does not clot milk

Pathogenicity — In all probability the fungus is a pathogenic one as in the cases of severe bronchitis in which it was found it gradually decreased in amount and finally disappeared from the sputum



Spo ot ch im angl cum Cast Hang ng drop cultu e

when the patients were placed on iodine therapy and began improving The patients recovered In a case in which a candida was also present both fungi disappeared and it is quite possible that both organisms had a part in the aetiology of the condition

Classifi ation — The abundant mycelium the extremely numerous conidia borne laterally on very short pedicella and also collected in large terminal and lateral clusters and the presence of hyphae

with numerous denticles or minute papillae justify placing this organism in the genus *Sporotrichum* Link 1809 It differs from *S shenki* in the colonies never becoming brownish black or black and from it and all described species in producing gas in glucose and some other sugars

Symptomatology — Two forms of Broncho sporotrichosis may be distinguished — 1) Primary Broncho sporotrichosis 2) Secondary Broncho sporotrichosis The first type is characterized by the affection starting in and remaining limited to the bronchi and lungs The second type is characterized by developing usually after a long time in cases of cutaneous and subcutaneous sporotrichosis In the first type only *Sp anglicum* has so far been found Severe cases closely resemble tuberculosis

Diagnosis — The diagnosis is based on the microscopical and cultural examination of the sputum The microscopical examination will show the presence of yeast like cells in certain cases while in others it will be completely negative The sputum should be inoculated into several tubes of glucose or maltose agar and left at room temperature for several days When colonies appear they should be mycologically investigated

Prognosis — The prognosis *is quite favourable provided a* correct diagnosis is made at an early stage and the appropriate treatment given

Mixed Infections — Broncho sporotrichosis + Broncho candidiasis are not very rare One such case was described by me in England

Treatment — The best treatment is by Potassium iodide to which it answers much more rapidly than bronchomycoses due to other fungi

4 DISEASES OF THE GENITO URINARY SYSTEM

I propose spending a few words on urethrites and vaginites o fungal origin and on a little known cystitis due to the metadysentery bacilli I will also very briefly discuss lactosuria in the tropics although it cannot be considered a disease

URETHROMYCOSES

Urethrites of fungal origin may be classified as follows

1 Discharge whitish or yellowish
2 Discharge reddish or pinkish
3 Discharge dark brownish or greenish black or black

I *Mycotic Urethritis with Whitish or Yellowish Discharge — This conditions is not rare I have seen several cases in the tropics* and a few in the Balkans and Southern Europe The discharge is generally present in small amount and is mucoid but occasionally it may be fairly abundant and may closely resemble gonorrheal urethritis The fungi found generally belong to the genus *Candida (Monilia)*

In Ceylon I noted the condition — due to *Candida (Monilia)* — in several cases of diabetes in these cases the candida may affect not only the urethra but also the glans penis producing a white membrane (thrush of glans penis) in certain cases the glans penis and corona are affected but not the urethra

ILLUSTRATIVE CASE

During the F st Wo ld War a young Serb an Off ce in Macedo a consulted me for a fai ly abundant p ul nt urethral disch rge He was d stressed he was eng ged to be m rried nd believed he w s s ff g f om gonorrhoea tho gh he denied hav g expos d himself to nfect on I examined the secretion gonococci were not pres nt nste d a la ge umber of yeast l ke cells and a few mycelial gme ts could be seen The cultur l est g t o showed the p esence of a *Cand da* I presc ibed a mixtu e co tai ng pot ssium od d sodium b carbon te

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During the First World War a young Serbian Officer in Macedonia consulted me for a fairly abundant purulent urethral discharge He was distressed he was engaged to be married and believed he was suffering from gonorrhoea though he denied having exposed himself to infection I examined the secretion gonococci were not present instead a large number of yeast like cells and a few mycelial segments could be seen The cultural *investigation showed the presence of a Candida* I prescribed a mixture containing potassium iodide sodium bicarbonate

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greenish black or brownish In certain cases minute granules may be present which on microscopical examination are seen to consist of mycelial threads and spore like bodies The fungi found generally belong to the following genera *Cladosporium Aspergillus Penni cillium* and rarely *Torulopsis (Cryptococcus) Monilia (Candida)* and *Actinomyces*

Illustrative case

An old Tam l ool e ame to the Colombo Clinic in Jan a y 1906 complain ng of black u ethral d sch g d ting from seve al months ba k He tated that he had not had sexual contact fo some years The secretion was bla kish and conta ned n me ou small gran le which on m c oscop c examinat on we e seen to consist of mycel l threads and spo e l ke bod es Various s g media we e ocul ted and a fungus was grown which produc d a black pigmentation and was apparently somewh t similar in cha acter to *Clado por um man m* Castellan In two othe cl nically s m lar cases one in a nat ve and the other in a Eu opean I found asperg llus-l ke fung In another case I found an *act nomyces* wh ch gave rise to black colon es in anothe yeast like fungus which produced a bl ck pigmentation

MYCOTIC VAGINITIS

It may be said in general that in normal women of clean per sonal habits fungi are not found or are extremely rare in the healthy vagina When a vaginal discharge is present fungi are not at all rare The fungi I have found belong principally to the following genera

Candida Saccharomyces Torulopsis (Cryptococcus) Actinomy ces Aspergillus Sterigmatocystis Penicillium Cladosporium Alter naria and *Geotrichum* By far the most common are fungi of the genus *Candida (Monilia)*

They seem to be encountered much more frequently in hot climates than in cold countries

Are these fungi or some of them really pathogenic? It has been stated that fungi of the saccharomyces type may be beneficial becau e they have a tendency to increase the acidity of the vagina and in this way may render more difficult the growth of pyogenic germs

Probably the fungi I have mentioned when present in small amounts act only as saprophytes but when present in large numbers

glycerine syrup of tolu and irrigations with a solution of corrosive merchuri chloride 1 20 000 The discharge disappeared completely within ten days

2 *Red Mycotic Urethritis* — This conditions is rare but I have seen a few cases in the tropics the Balkans and Southern Europe I have also seen a case in New Orleans

The urethral discharge is usually in exceedingly small amount mucous or muco purulent reddish or pinkish The cases of this condition may be divided into the following groups

1 — The discharge is associated with a red pigment producing *torulopsis (cryptococcus)*

2 — The discharge is associated with a white candida fungus plus a red pigment producing torulopsis

3 — The discharge is associated with a white candida plus a red pigment producing coccus

4 — The discharge is associated with a white candida and a red pigment producing bacillus

ILLUSTRATIVE CASES

Case 1 — A little Singhalese boy aged six years was brought to my clinic in Colombo by his parents because they believed he was passing blood from the urethra The discharge examined microscop cally consisted of some leucocytes and numerous budding cells Several sugar agar tubes vere inoculated and a red pigment producing torulopsis (cryptococcus) was grown *The child* was given an alkaline mixture and instillat ons of diluted glycerine of borax were carried out *Th s however did not improve the condition* Urethral inject ons of a solution of perchloride of mercury 1 20 000 were then made and a speedy cure resulted

Case 2 — Mr L N Italian for the preceeding eight months had noticed a slight pinkish or reddish discharge Pain was not felt in passing urine The micros opic examination showed absence of gonococci and presence of numerous coccal organisms and some yeastl ke germs The fungus (of the genus *Candida*) I have grown several times *in symbiosis with a red pigment producing* coccus I have separated the two organisms with some d fficulty The fungus gives rise to cream like colonies while the coccus growth is a beautiful red

3 *Black Mycotic Urethritis* — This condition is exceedingly rare but I have seen cases in the tropics and in Southern Europe The discharge is present in small amount and is usually blackish /87

without any distinctive objective symptoms pointing to an epidermo phytic infection

Mycotic Vaginitis with Red Discharge — I have seen only one case It was apparently due to a red pigment producing *Torulopsis (Cryptococcus)* present in enormous numbers It is of course possible that the vaginitis may have been of some other origin and that the *Torulopsis (Cryptococcus)* merely caused the peculiar reddish colour of the mucopurulent secretion In addition to the *Torulopsis (Crypto coccus)* there were present in small numbers a Gram negative bacillus which I did not determine and some few Gram positive cocci of the staphylococcus type

Mycotic Vaginitis with Black Discharge — In old native women in the Far East occasionally a vaginal discharge may be present in which small black granules are seen Fungi of the genera *Aspergillus* and *Penicillium* have been grown

Transmission of Fungal Infection by Sexual Contact — As cer tain species of fungi have been found in both the male urethra and the vagina it is not impossible that in certain cases the infection may take place by sexual intercourse

CYSTITIS METADYSENTERICA

(Metadysenteric Cystitis)

This is a form of cystitis the true aetiology of which is often overlooked It was first investigated by me nearly two decades ago at the Ross Institute and Hospital for Tropical Diseases in London with the very valuable assistance of Dr Mackenzie Douglas I have recently observed a case in Portugal

The disease is due to organisms of that group of intestinal bacteria which I called the metadysentery bacilli and for which Cerruti crea ted the genus *Castellanus* These organisms differ from the dysen teric bacilli (Shiga Kruse) and the paradysenteric bacilli (Flexner and Flexner like) in fermenting (acidity only) lactose and coagu lating milk The three chief species are *B zeylonensis* A Cast 1907

they produce inflammation I have seen cases of vulvovaginitis in which the mycotic origin was practically certain Similarly to the cases of mycotic urethritis they may be grouped as follows

1 With white or yellow discharge
2 With red discharge
3 With black discharge

Those of the first group are by far the commonest the other two groups are exceptional

Mycotic Vulvovaginitis with white or White Yellow Discharge Generally fungi of the genus *Candida (Monilia)* are found in large numbers Three clinical types associated with the presence of *candidae* may be separated a) the membranous type or «vaginal thrush» — thrush like patches are present on the mucosa b) the purulent type — such patches are not present but the secretion is thick and purulent and in my experience these cases have not rarely been mistaken for gonorrhoea c) a mixed type thrush like patches are present *and the discharge is purulent and thick*

In 1914 in Ceylon I had the following experience The surgeon in charge of the Colombo Gynecological Hospital had a patient a middle aged Singhalese woman in whom a pelvic operation was urgent a thick purulent vaginal discharge was noted and he felt inclined to postpone the operation as he suspectd a possible gonorrhoeal infection In those days of course there were no sulpha drugs and no antibiotics

I was asked to examine the discharge Gonococci were not present instead there was an enormous number of mycelial and budding elements Further investigations revealed the fungus to be *Candida albicans var pinoyi*

Attention might also be directed to the presence of numerous candidae (moniliae) *in certain cases of* chronic vaginal pruritus although the role played by candidae in the causation of the pruritus has not been completely proved *Attention might also be called* to a variety of pruritus vulvae and pruritus ani caused by the localization of thrichophytonlike fungi associated with *Candida* fungi *in* the ano perineal region and external surface of the labia majora

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(*B sonnei* Levine 1921) *B ceylonensis B* Cast 1907 and *B madampensis* Cast 1911 See also p 1920

Symptomatology — Clinically this form of cystitis can hardly be separated from the cases of medium gravity cystitis due to B *coli* The patient complains of pain in passing urine and the desire to pass urine frequently there is often pain in the suprapubic region There may be fever but this is not a constant feature When present the fever is usually of low continuous intermittent or irregular type The urine in the majority of cases on microscopical examination shows presence of pus cells very occasionally of red blood cells The bacteriological examination of the urine collected by catheter will show presence of bacilli of the metadysentery group either alone or mixed with coli and other organisms Some cases run an acute course lasting only a few days but in many cases the course is subacute and there is great tendency to chronicity In the past once it had become chronic the condition was very difficult to cure but at present most cases answer to sulphonamides

ILLUSTRATIVE CASE

Case 1 — Mr aged 38 The patient consulted me several times in October 1931 He had been suffering from chronic colitis and cystitis for many years The stools contained histolytica cysts By cultural method *B madampensi* was grown The urine contained a large amount of pus No catheter was used After cleaning the glans penis with warm boric lotion he was made to pass urine in three sterile vessels The urine of the second vessel was examined bacteriologically On MacKonkey plates numerous red colonies and also several white or whitish pink delicate colonies were seen Further investigation showed that the red colonies were colonies of *B coli var communior* the white colonies of *B madampensis* the same bacillus found in the stool The organism was agglutinated by the patient s serum in a dilution of 1 360 and by a standard *madampensis* serum in a dilution of 1 1 200 The *madampensis* strain isolated from the patient was serologically and biochemically identical with the laboratory strains of *B madampensis*

Case 2 — Little girl aged 8 the daughter of a medical man Had severe colitis when 4 years old Developed acute symptoms of cystitis in June 1929 The urine was aseptically collected by her father using a catheter It was acid and contained numerous pus cells The bacteriological examination showed presence of *B ceylonensis A* in pure culture The organism showed all the biochemical reactions of the typical *ceylonensis A and was agglutinated by B ceylonensis A* serum

Case 3 — Italian 29 years of age p ss ng through Lisbon consulted me in Februa y 1950 for ch on c cyst t s D d not g ve h story of intest nal trouble The bacte ological examination of the urine showed p esence of *B madampensi* Sul phadia n one tablet g m 0 50) every three hours answered very well

Mixed Infections — In most cases *B ceylonensis B B ceylo nensis A B madampensis* are found in pure cultures in chronic cases they are usually associated with *B coli* and occasionally with strepto cocci and proteus

Diagnosis — This is based on the bacteriological examination of the urine

Prognosis — The prognosis is favourable *quoad vitam* but in a number of cases the condition becomes chronic and was most diffi cult to cure before the introduction of the sulphonamides

Treatment — The sulphonamides especially sulphadia ine ans wer admirably

LACTOSURIA IN THE TROPICS

In some parts of the tropics lactosuria in nursing women seems to be more common than in Europe The general health is not affected but many of these cases are diagnosed as diabetes when the usual copper reduction methods are employed in examining the urine I strongly recommend using the mycological and bacteriological methods found and int oduced by me in 1917 with the assistance of Dr Taylor for the detection and determination of various suga s in the urine

Next to dextrose lactose is the commnest sugar found in the urine It is encountered frequently in the urine of nursing mothers Lactose as is well known reduces Fehling s and Benedict s solutions and not infrequently lactosuria has been mistaken for true glycosuria It is most important to distinguish between the two conditions as lactosuria is not serious while glycosuria especially in nursing women is of grave prognosis The chemical detection and determination of lactose is difficult for an ordinary medical man In most text books it

is stated that if a urine reduces Fehling s solution and is not fermented by ordinary baker s yeast (so called German yeast or brewer s yeast) the presumption is that the reducing substance is lactose There are however two important sources of error

First a number of specimens of baker s yeast ferment lactose in addition to dextrose malto e and other sugars second even if the baker s yeast should *not ferment lactose this is not the only* substance that reduces Fehling s solution which may not be fermented by baker s yeast — pentose for instance

If a urine which reduces Fehling s solution is not fermented by ordinary yeast it cannot therefore be concluded that the condition is lactosuria

Detection and Determination of Lactose by the Mycological Method — The copper reducing urine freshly passed is boiled for one minute and distributed into two sterile saccharometers To the urine one third of peptone water may be added to facilitate the growth of the organisms

One of the two saccharometers is inoculated with B *coli (Escherichia coli)* and the other with *Salmonella paratyphosa B (S schottmuelleri)* If after forty eight hours in the incubator at 35 37 C the tube inoculated with *Es coli* contains gas and the other not we may come to the conclusion that the urine contains lactose

In the urine that reduces Fehling s solution for practical purposes the following formula is correct

I *Escherichia coli* (Escherich) + } = lactose
Salmonella paratyphosa B (Schottmuller) O }

The reason is that with regard to the fermentable copper reducing substances which may by found in the urine both organisms gas ferment the same substances excepting lactose which is fermented by *coli* but not by *paratyphosus B* therefore a urine which is ga fermented *by coli* and not gas fermented by *paratyphosus B* and Fehling reducing must contain *lactose*

Escherichia coli and *Salmonella parthyphosa B* besides lactose differ in their action on raffinose salicin and glycerol but *raffinose*

and salicin are not carbon compounds found in the urine and at any rate they do not reduce Fehling s or Benedict s solution

I will mention two other mycological formulae indicating the presence of lactose

II	*Candida (Monilia) pseudotropicalis* Cast	+	= lactose
	Candida (Monilia) macedoniensis Cast	O	
III	*Candida (Monilia) pseudotropicalis* Cast	+	= lactose
	Candida (Monilia) tropicalis Cast	O	

The sign + is used to indicate production of gas

The reader interested in the mycological methods for the detection and determination of various sugars and other carbohydrates both copper reducing and not copper reducing e g maltose galactose pentose saccharose inulin may consult the section on the subject in my old monograph Fungi & Fungous Diseases (Chicago 1927) or my papers published in the Annales Institut Pasteur 1930 (First Int Congress of Microbiology Paris) and Journal of State Medicine vol xxxix No 11

MALTOSURIA

Maltosuria is a rare condition but is occasionally seen in heavy beer drinkers Some time ago I had a case from South Africa where the patient was diagnosed as diabetes He had been a heavy beer drinker for years

The patient was in good general health and the glycemia was within normal limits I detected his condition using one of my old mycological methods The urine freshly passed (Fehling reducing) is sterilized in flowing steam twice at a few hours interval in Koch s stove In practice it is simpler to boil the urine for one minute this will not usually cause any alteration in the sugar present It is then distributed in two tubes containing Durham s fermentation small tubes or in two saccharometers It is of advantage to add about 1/3 the volume of peptone water One of the tubes is inoculated with *Candida (Monilia) tropicalis* Cast and the other with *Candida macedoniensis* Cast If after three days in the incubator at 35 37 C

tube N 1 shows gas fermentation and tube N 2 does not show any gas fermentation we may conclude that the Fehling reducing fermentable substance in the urine is maltose The explanation is the following With regard to Fehling reducing carbohydrates which may be present in the urine *Candida tropicalis* gas ferments glucose levulose mannose galacto e maltose *Candida macedoniensis* gas ferments glucose levulose mannose galactose not maltose The urine has been gas fermented by *Candida tropicalis* and therefore the Fehling reducing fermentable substance present must be glucose or mannose or levulose or galactose or maltose But had it been glucose levulose mannose galactose it would have been gas fermented also by *Candida macedoniensis* The Fehling reducing substance present must therefore be in all probability maltose

GALACTOSURIA

A certain amount — about 20 cc — of the copper reducing freshly passed urine is sterilized — in practice boiling for one minute is sufficient — and placed into two tubes containing Durham s fermentation small tubes or into two saccharometers *It is of advantage* to add 1/3 the volume of sterile peptone water as found in all bacteriological laboratories to facilitate the growing of the diagnostic organisms *Tube N 1 is inoculated with true B morgani sensu stricto* (Morgan bacillus N 1 which does not touch maltose) Tube N 2 is inoculated with *Candida krusei* If after three days of incubation at 35 37 C tube N 1 contains gas and tube N 2 does not the inference is that the fermentable copper reducing substance present is galactose Why? With regard to fermentable copper reducing substances which may be found in urine *B morgani sensu stricto* (Morgan s bacillus N 1) ferments with production of gas only glucose levulose galactose and therefore the copper reducing substance can only be in practice *either glucose or levulose or galactose* but had it been glucose or levulose it would *have been gas fermentd also by Candida krusei* it must therefore in all probability be galactose

PLNTOSURIA

This condition is not extremely rare and the pentose present is generally arabinose For the detection and determination of it the following simple method may be used The Fehling reducing urine freshly passed is sterili ed in flowing steam or in practice much more simply by boiling for one minute which as a rule does not alter the constitution of any sugar present The urine is then poured into two tubes containing a Durham s fermentation small tube or in sacharometers Tube N 1 is inoculated with *Bacillus paratyphosus A* and tube N 2 with *Bacillus asiaticus* Cast If after three days in the incubator at 35 37 C tube 1 shows gas fermentation and tube 2 shows no gas fermentation we can conclude that in all probability the Fehling reducing substance present is arabinose The reason is that with regard to the usual Fehling reducing substances which may be found in the urine *Bacillus partyphosus A* and *B asiaticus* ferment the same substances *excepting* arabinose which is fermentd by *B partyphosus A* and not *B asiati us* If a Fehling reducing substance is gas fermentd by *B paratyphosus A* and not by *B asiaticus* it must in all probability be arabinose

5 DISEASES OF THE ORGANS OF SPECIAL SENSE

In the tropics and occasionally in the temperate zones the regions of the canthi particulary of the inner canthus frequetly show a white accumulation of matter or a white pellicle The pellicle may extend to the whole of the palpabral rims both upper rim and lower rim It is easily removable and as a rule there are no subjective symptoms except an occasional slight itching sensation The condition is more common in elderly people than in young people and is considered by some authors a form of blepharitis

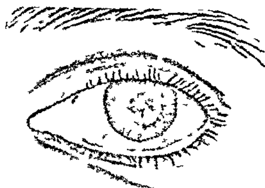
Aetiologically there are two principal types — the fungal and the bacterial

In the mycotic type yeast like fungi are observed usually belonging to the genus *Candida* When the fungal variety is caused by

a *Candida* and a large pellicle is present the term *ocular thru* may be used

In the bacterial type a diphtheroid bacillus is found in enorm numbers either alone or with a few cocci

A mixed type mycotic and bacterial, is occasionally seen



Leucopellicula oculi due to Candida

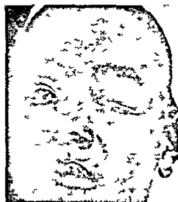
OCULAR EMETINE CONTACT SYNDROME

(Emetine impact delayed pain)

In the tropics and subtropics where so many emetine injection are given it is not at all rare for an ampoule to get broken and par of the contents to get into the operator's eyes At first he feels nothing at all and the conjunctiva does not become inflamed and he forgets about the accident Ten to 24 hours later while he is usually asleep he wakes with a terrific excruciating pain in the ball of the eye The patient who I say again has *generally forgotten the accident* goes to see an eye specialist who not knowing the history finds himself nonplussed and hardly knows what to advise The pain gradually disappears *spontaneously 48 to 72 hours after onset though* occasionally it may take much longer During the attack of the extremely severe pain morphia injections may be necessary

SUDAN OEDEMA OF THE EYELID

In the Sudan and especially in Khartoum a peculiar acute oedema of the eyelids affecting one or both eyes has been known for many years but the cause was unknown until Chalmers and Marshall (1918) carried out some researches on the subject and found that it was due to the bites of an ant The patient goes to bed at night in perfect health — in the morning on awakening he will find that his eyelids



Case of Sudan œdema of the eyelid

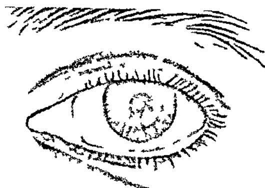
are swollen occasionally slightly painful and irritable On close examination one can very often see one or two minute spots which when double are close together and look as though caused by a pinch with something sharp The swelling naturally causes some alarm but it subsides after treatment with fomentations with warm boric lotion

The condition is caused by the bites of a small ant which the Sudanese natives call *darra* and which infests the native huts and the rooms and beds of the European residents The ant seems to belong to the genus *Monomorium* Mayr 1885 and possibly it is a variety of the species *M minutum* Mayr 1885 The best way of

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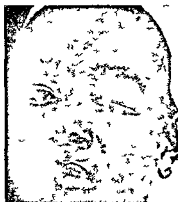
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keeping the ant away from the beds is to sprinkle the sheets and blankets with powdered camphor and to place the feet of the bedpo ts in small tins or other receptacles containing a disinfecting solution such as strong lysol solution 10 % carbolic acid 5 % or a strong infusion of native tobacco

OTOMYCOSIS

Various fungi may be present in the external auditory canal without causing any symptoms In some cases however the fungus multiplies abundantly and may be the cause of a local inflammation or may apparently facilitate the formation of a wax plug In several cases I have found a *Candida* which I have called *Candida rhoi (Monilia rhoi)* probably a variant of *Candida tropicalis* In two cases of otomycosis I have found a fungus belonging to the family *Mucoraceae Lichtheimia ramosa* Lindt *1886* It was present in great quantity and the patient complained of tinnitus aurium and great deafness It is interesting to note that this fungus is often found in the nasal mucus of horses and that both my cases were Tamil muttos (horse keepers) Various authors (Siebenmann Boke Huckel and others) have recorded cases due to *Lichtheimia corymbifera* Cohn *Rhizomucor septatus* Von Be old Maggiora and Gradenigo found *Saccharomyces ellipsoides* Rees in cases of chronic otitis media The same authors found a new species of *Saccharomyces* (*S roseus*) in the Eustachian tubes

Aspergillomycosis of the ear is comparatively frequent I have seen several cases in Ceylon and later New Orleans apparently due to *A fumigatus* Fresenius Gramer observed *A niger* Von Tiegham Wreden *A flavus* De Bary and *A nidulans* Eidam Fungi of the order Basiodiomycetes family Ustilagineae have also been observed *Ustilago carbo* and *Tilletia levis* Of the order Hyphomycetes sensu stricto *Trichothecium roseum* Persoon 1801 has been observed in a few cases I may mention here that a satisfactory treatment I have found for the various forms of otomycosis is instilling the antimycotic fuchsin paint known by my name and better still pouring it in large amount

SYMMETRICAL EAR NODULES

This condition was described by me in Ceylon in 1910 It is rare In the deep substance of the lobule of both ears — generally the condition is symmetrical — a small spherical nodule hardly visible is felt on palpation Occasionally a nodule becomes much larger is of elastic consistency the size of a pea to a cherry at times even larger and becomes very tense and may present a somewhat translucid appearance after some days it becomes smaller again and may be hardly visible There are as a rule no subjective symptoms during the periods of quiescence a feeling of slight pain and tension is felt during the periods of increase in the si e of the nodules The condition is not leprotic there being no anaesthesia or other signs of leprosy

It may possibly be of parasitic origin but nothing definite can be stated as none of my patients would allow the removal of the nodule

An account of the condition may be found in Castellani & Chalmers Manual of Tropical Medicine 1919

RHINOMYCOSIS

Yeast like and other fungi are often observed in the nasal mucus they may play only a saprophytic role or they may give rise to an inflammation of the mucosa In Colombo a little native boy was brought to me by his parents who stated that he had been suffering from repeated attacks of severe snee ing for the last three months and they had observed that on blowing the nose minute black dots were coming out with the mucus Microscopical and cultural investigation showed the case to be one of aspergillosis due to *A niger* In the literature cases of aspergillosis due to *A glaucus* De Bary and *A fumigatus* Fresenius have also been described In New Orleans in a case of chronic sinusitis a beautiful red pigment looking fungus was found which could not be identified

6 LITTLE KNOWN TROPICAL SURGICAL DISEASES AND SYNDROMES

I will limit myself to saying a few words on a still little known surgical condition described by me many years ago under the name of endemic funiculitis and on certain surgical syndromes which may be caused by tropical fevers and tropical internal diseases chiefly malaria and amoebic dysentery I propose also giving a short account of «be oar» and briefly treat the subject of animal bites about which so little is found in medical and surgical textbooks

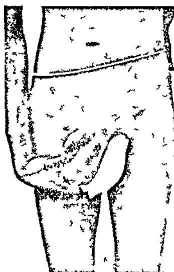
ENDEMIC FUNICULITIS

For many years men practising in Ceylon noticed the occurence of a peculiar form of acute suppurative inflammation of the spermatic cord which occasionally took a true epidemic character numerous cases occuring within a short period References to this affection may be found in all the medical reports for the colony the disease being variously indicated by the name of phlebitis of the cord or corditis It was considered by some to be of traumatic origin by others of venereal origin Some practitioners considered it to be a malarial affection The disease was investigated by me in 1907 I came to the conclusion that it had nothing to do with either malaria or gonorrhoea I thought the condition had sufficiently characteristic symptoms to be ranked as a separate disease or at least syndrome and suggested the name endemic funiculitis The affection is not limited to Ceylon as cases occur in Southern India and an identical pathological condition has been described in Egypt by Madden under the name of cellulitis of the spermatic cord The condition described by Wise in the West Indies is probably the same pathological entity Of great importance are the investigations by Coutts Cases have occurred in Kenya and other regions of Africa

Morbid Anatomy — At the post mortem examination of the cases in which an operation has not been performed in time the lesions found are those of a septicaemic process The skin is jaundiced

and may present petechiae the lungs often show hypostatic con gestion the heart is flabby and subpericardial haemorrhages are often seen The spleen is enlarged and soft The liver is generally enlarged and may show fatty degeneration or cloudy swelling The kidneys are often congested

Etiology — The condition is due in all probability to a strepto coccal infection engrafted on filariasis although there are some cases



Case of endem funicul tis (Ceylon)

which seem to be of purely bacterial origin and in which the filarial infestation can be excluded with certainty

Among Ceylon p ctit oners the d sease w s ons d ed by some to be of t umatic o g n others bel ved t to be of v ne eal origin and yet oth s to be a mala l man festat o I found n all the Ceylon c ses v ulent d plo-streptococci ind t ngu sh ble f om the o d n y streptococ but for the fact that wh le gram n gative n th pus som we e G am pos t ve n the cultures Accord ng to Coutts the e m c ococc wh ch are d colo d by G m in se t ons of the tissues and in sm a s f om the pus are oft n found in the u eth a of the natives He egards the

suppurative condition of the cord as due to the extention of an infection from the urethra by way of the vas deferens In about 30 per cent of my cases microfilariae of the type bancrofti were present It is possible that the filaria plays the more important or only role in the subacute or chronic cases while the streptococci are the cause of the acute semptoms and the suppuration and the septicaemia

Symptomatology — The disease begins suddenly generally after a hard day s work or severe exercise In Ceylon the usual history is as follows The patient after an extra hard day s work comes home



Funiculus in a case of endemic funiculitis Note large openings of the dilated veins which were filled with pus The testis and epididymis were normal but the tunica vaginalis contained a small quantity of fluid

in the evening very tired but not feeling unwell and takes a cold bath as usual After the bath he is suddenly seized with a shivering fit the temperature rising very high He feels very sick and there is often actual vomiting At the same time he complains of pain along the cord and epidymis The condition becomes rapidly worse and the patient is generally taken to hospital on the second or third day of the illness On admission it is usually found that the general con

dition is grave There may be continuous vomiting and occasionally hiccough the temperature is generally about 102 F and the pulse small and frequent At the physical examination it will be seen that the inguinal region is occupied by a large cylindrical swelling in the direction of the cord The swelling is very tender on pressure and hard the skin is not affected Generally the epididymis is somewhat enlarged and tender though in some very recent cases it may not appear to be affected In all cases the testicle proper appears to be normal there is as a rule little or no effusion in the tunica vaginalis The affection is generally localized to one side only but occasionally attacks both sides On examination of the penis and scrotum no ulcers are found no signs of gonorrhea and no signs of any traumatic lesions though in several cases the patient gives a history of having made an effort of some sort As a rule the disease has no tendency to spontaneous recovery If an operation is not performed in time signs of general septicaemia usually set in In such cases the skin of the patient often becomes jaundiced cutaneous haemorrhages may appear the fever is of an intermittente or remittent type the pulse becomes extremely small there is often hiccough and the patient dies in a few days

Varieties — A mild form with thrombosis of the veins but without suppuration is at times met with According to Coutts a chronic form also without suppuration may occur

Prognosis — This is serious in the ordinary acute form If an operation is not performed in time symptoms of general septicaemia set in and the case as a rule ends fatally

Diagnosis — The disease is apt to be confused with strangulated hernia or an acute elephantoid condition of the testicle and cord From the former endemic funiculitis may be differentiated by the history the high fever and the course which is somewhat less acute. In some cases especially in the fulminating forms operative treatment alone will clear the diagnosis

From an acute elephantoid condition it may be differentiated by the absence of the erysipelatous like redness of the skin

Treatment — Except in the rare mild forms when lead lotion and ichthyol ointment with or without ice applications may be sufficient the only effective treatment is surgical and orchiotomy with section of the inflamed cord as high up as possible is imperative Coutts recommends exposure of the inflamed cord by a free incision through the skin and external oblique to be followed by numerous incisions into the tumour The wound is left open and fomentations applied till the surface is clean The wound is then left to heal by granulation Coutts considers that in this way though the testis loses its generative function its internal secretion is unimpaired

When the disease has extended beyond the internal abdominal ring orchiotomy must be performed and the veins left unligatured while fomentations are applied

Sulphonamides penicillin and other antibiotics seem to be useful but usually are not sufficient to induce a complete cure and prevent an operation

APPENDICULAR SYNDROME OF MALARIAL ORIGIN

Surgeons who do not live in an intensely malarious place will hardly believe that malaria may give rise to syndromes closely resembling surgical diseases One such syndrome which is not very rare is the appendicular syndrome The patient suddenly complains of severe pain in the lower right abdominal quadrant he has high fever he vomits The physical examination reveals extreme tenderness and resistance in the appendicular region The pulse is frequent and small These cases not rarely are operated on and practically nothing is found excepting perhaps a slight congestion of the appendix and the coecum The appendix never contains pus If it is sectioned and smears made from it in some cases numerous malaria parasites are found in the enlarged capillaries The correct diagnosis is usually suggested by the enlargement of the spleen presence of malaria parasites in the peripheral blood prompt response to quinine and other antimalarial drugs given in large doses at times by intramuscular or intravenous injection

APPENDICULAR SYNDROME OF AMOEBIC ORIGIN

I have seen quite a number of cases of appendicitis operated on although the condition was of amoebic origin The correct diagnosis is suggested by the patient giving a long history of intestinal disturbance before the attack of appendicitis by the liver being often enlarged by the presence of *Entamoeba histolytica* cysts in the faeces by the extremely rapid response to emetine In a fairly large number of cases of chronic subclinical amoebiasis presence is noted of one two or three of the so called Castellani s signs subensiform tender spot zone of dullness at the right base liver dulness high on the middle axillary line normal on the mammillary line Description of these signs none of which of course is pathognomonic may be found at pag 1901

MALIGNANT TUMOUR SYNDROME OF AMOEBIC ORIGIN

The patient for months feels discomfort and at times pain in the region of the sigma and passes several small motions daily consisting of blood and mucus After a time on palpitation one feels a tumour like mass in the sigmoid region and the X ray examination after a barium enema shows signs of stricture In these cases the urgeon is apt to make a diagnosis of malignancy of the sigma and advises an operation Before doing so the examination of the stools for cysts should be carried out many times and the emetine therapeutic test should be tried to exclude the tumour being in reality an amoeboma

BEZOAR

Recently my advice was sought by a young colleague regarding a case under his care who had been suffering from obscure dyspeptic smptoms for years From time to time the patient was vomiting and in the vomited matter on several occasions hair had been found Hair was found also occasionally in the faeces It turned out to be a typical ca e of «be oar» (trichobe oar)

The term bezoar is of Persian origin being derived from the word bad-zehr and for centuries it was applied to indicate the free ball like masses of concretions of various types found in the stomach or intestines of animals especially horses cows and cats In the middle ages valuable curative properties were ascribed to them The condition is found also in man The term trichobezoar is used when the bodies consist of hair the term phytobezoar when the condition is of vegetal origin and the term mycobezoar when it is of mycotic origin The last may be considered a variety of phytobezoar

As stated this term indicates that the masses or balls inside the gastric cavity are composed of hair Trichobezoar is not very rare in horses cows and cats Baulamant in 1779 (Journal de Médicine et Chirurgie vol 52 p 507 1779) gave a good description of the condition as observed in man and Schoenborn performed the first operation for such a condition in 1883 In more recent years valuable studies have been on the subject by I J Davies (Lancet Oct 15 p 791 1921) Maes (Ann Surg vol 88 p 685 1928) Thorek and Rutter (Am Journ of Surg March 1937 p 603) Matas paper is especially important (Trans Surg Gynecol and Obst vol 21 p 594 1915)

Etiology — The condition is usually found in nervous or hysterical individuals generally young women who have got into the habit of biting and swallowing hair It may be found in persons who on account of their work are handling hair continously such as wig makers who may swallow bits of hair floating about or hairs the hold in their mouth in the course of their work

Symptomatology — For years the patient may have no symptoms whatever except occasionally some slight dyspepsia Later in the majority of cases there is gastric pain vomiting constipation bad breath and severe symptoms of acute obstruction may develop requiring an immediate operation

Diagnosis — Some cases may be suspected on the history which can be elicited from the patient and from his occupation It may be made with certainty when portions of the bezoar are vomited they are seldom passed with the stools The X ray examination is most

important as it puts in evidence as a rule a mass or several masses lying free in the gastric cavity surrounded by the opaque barium meal which outlines and coats them and radioscopic palpation demonstrates the masses to be freely movable within the stomach

Treatment — The treatment is surgical gastrotomy and removal of the ball like masses

PHYTOBEZOAR

This term is used to denote a be oar of vegetable origin It is found occasionally in persons who for years have a diet consisting chiefly of fruit vegetables coarse bread and who use much bran An interesting case has been reported by Thorek and Rutter of a phytobe oar in a woman who for five years had been on a diet com posed practically entirely of persimmons and other fresh fruits cereals and whole wheat bread The X ray examination after a barium meal revealed two masses rather widely separated coated with barium lying free in the stomach Gastrectomy was perfomed and two large soft emerald green foreign bodies were removed On sectioning it was found that they consisted of portions of persimmons and many vegetable and plant fibres

MYCOBEZOAR AND FUNGAL GROWTHS IN THE STOMACH

The presence of fungal elements in the stomach contents is quite common the organisms being introduced with the food Occasionally the fungi actually multiply on the mucosa — usually without pene trating it — forming pseudo membranes casts and rarely ball like masses When the myccotic masses are large and ball like they are considered bezoars (mycobe oars) and included by some authors among the phytobezoars *(vide supra)* The commonest variety of the condition is gastric thrush due to yeast like fungi of the genus *Can dida* and characterized by the presence of white patches on the mucosa *it may extend to the intestine* A case has been described by J T Duncan and F Murgatroyed in which a fungoid cast of the

stomach of a white colour produced by a Fusarium *sp* was vomited (Trans Roy Soc Trop Med vol 31 N° 5 1938)

The symptomatology of the fungoid growths in the stomach is not characteristic The symptoms unless the mycotic infection is secondary to carcinoma or some other serious condition of the organ are mild the patient complaining merely of slight discomfort in the epigastric region rather than pain Occasionally eructaction is a pronounced symptom

The diagnosis can be made only when portions of the fungal growth appear in the vomit or in the material obtained by the gastric tube The microscopical examination will show the membranes or masses to be composed of yeast like cells and mycelial filaments

An alkaline treatment may be prescribed in cases of gastric thrush as it has often a mycostatic action on candida fungi If it fails basic fuschsine may be given in cachets or soft gelatinous capsules or friable pills each containing grm 0 15 0 20 of the drug one dose three or four times daily for periods of 3 or 4 days at a time Basic fuchsin given in the above dosage does not cause any obnoxious symptom but the urine often becomes pinkish

I may say *en passant* that I first introduced basic fuchsin in the abortive treatment of cholera — in the very first stage before vomiting begins — many years ago grm 0 20 every 15 minutes or grm 0 10 every ten minutes until a total of grm 1 60 2 00 has been administered The rationale of it is this in cholera diarrhoea appears before the vomiting and the administration of fuchsin at the vere beginning of the diseases is therefore possible The fuchsin quickly reaches the small intestine and apparently kills the vibrios by fixing and staining them and therefore their endotoxin is not liberated Readers interested in the subject might consult my paper «Breve nota sul trattamento del colera con la fucsina» (Rivista Instituto Sieroterapico Italiano (Napoli) Vol 23 N 2 pag 74 1948) in which certain experimental investigations are reported which I carried out with the valuable assistance of Iacono Servino and Zanelli

ANIMAL BITES

(Bites maulings and other traumatisms inflicted by wild and domestic animals)

The subject of bites and maulings inflicted by animals is of importance especially in tropical countries but little information on it is found in the ordinary medical and surgical text books

Bites and maulings of wild and domestic animals are quite common in India and Tropical Africa According to official returns in India in 1925 wild beasts caused 1 974 deaths of which 974 were accounted for by tigers while the rest were assigned mostly to wolves bears leopards elephants and wild pigs In 1926 the total number of persons killed by wild animals in British India amounted to 1 987 Tigers were responsable for 875 deaths leopards 185 wolves 167 bears 96 elephants 58 and hyenas 15 of the 393 deaths from other animals 41 were assigned to wild pigs and 151 to crocodiles

Statistics for later years are not available as they are no longer quoted in the anual reports of the Public Health Authorities

I make a distinction between the physical injury caused by the bite of one of the larger animals and the chemical injury caused by a venomous animal I do this advisedely while recognizing of course that the former may introduce germs viruses and toxins into the wounds so produced

BITES MAULINGS AND OTHER INJURIES INFLICTED BY THE LARGER CARNIVORA

I refer especially to the injuries inflicted by the bites rends and scratches produced by the teeth and claws of species belonging to the families *Felidae* and *Ursidae*

In the Felidae are *Felis leo* Linnaeus whose habitat is in Africa *F tigris* Linnaeus habitat Asia *F Pardus* Linnaeus habitat India *F leopardus* Linnaeus habitat Africa *F onca* Linnaeus habitat South America *F pardalis* Linnaeus habitat South America These cats have the dental formula $\frac{3\ 1\ 3\ 1}{3\ 1\ 2\ 1}$ giving thirty teeth for the whole mouth which includes the most perfect types of carnassial teeth capable of producing exceedingly severe lacerations These animals feed not merely on fresh prey which they have recently slain but also on its body for a day or so after its death

Their maws and claws therefore become foul being infected with microorganisms and their toxins and hence the great danger of

septic intoxication and infection which markedly increases the gravity of the injuries inflicted

The other family *Ursidae* includes the bears which are found in India and Ceylon e g *Ursus torquatus* of the Himalayas and *U malyanus* Their dental formula is $\frac{3}{3}\ \frac{1}{1}\ \frac{4}{4}\ \frac{2}{2}$ = forty two teeth in the mouth but these do not include carnassial teeth which added to the facts that they are not as a rule such foul feeders and often eat vegetal foods causes their bites to be not quite so serious from a septic point of view as those of the Felidae

Their claws however may produce most serious effects of both *a traumatic and of a septic nature* The importance of the septicity of these wounds has been well appreciated from earliest times for in the fifth book of his «De Medicine» Celsus remarks with regard to the bites of ferocious animals and also of dogs apes and man «Omnis autem fere morsus habet quoddam virus»

It is of course possible for any person of any age and either sex to be the victims of wounds inflicted by these animals but the persons most frequently injured are hunters (shikaris) and sportsmen while the district postmen in jungle regions run great risk as do shepherds and to a less extent herdsmen and to a still less extent cultivators and villagers living in lonely places or in the bush or jungle Years ago with my friends A J Chalmers Geo Low and D Christy I had the experience of encountering wild animals under unexpected circumstances during journeys into the interior of Africa but the risk which an ordinary traveller with his gang of porters runs is relatively small particulary if he has some slight knowlege of the habits of these animals The most dangerous regions to travel through is tall grass as the hunter or traveller and the wild beast may meet suddenly and it is here that an accident is more likely to occur than in open scrub country Another prevalent cause of accidents is the beating by means of men on foot of jungle or bush into which a wounded animal has retreated The especially dangerous animal under such circumstances in India is the tiger and long ago Sir Samuel Baker especially drew attention to this fact and recommended that if no elephants are available then a herd of buffaloes should be driven through the jungle as they will quickly dislodge the tiger The

possible presence in the vicinity of the mate of the wounded animal should always be borne in mind as the omission to remember this simple fact has often led to grave accidents



Bite of Hyena (Scarring)

Symptomatology — The physical signs and symptoms produced by these bites and mauls may be divided into general and local With regard to the former immediately after being bitten or mauled the victim if able to stand feels giddy and turns pale becomes unable to stand and if the injuries are at all severe quickly passes into a

condition of shock with a weak pulse cold extremities pinched drawn face and weak voice and *may become insensible which* indeed is often his condition when first rescued in the severer cases As a rule he remains in a more or less torpid condition *sleeping day and* night and suffering severely when roused from thirst and pain All these symptoms are more accentuated in Europeans than in natives

Usually reaction sets in fairly quickly the temperature rising to 101 to 102 F *or even more while the pulse is* generally quick ranging about 110 to 120 beats per minute Generally the torper continues for some time but delirium may intervene The mouth and throat continue to be dry and thirst is still a marked symptom Locally the injured region may show rends and tears in the skin lacerations *of the muscles* tendons exposed and torn *vessels* and nerves injured with more or less haemorrhage bones may be exposed *bruised broken or dislocated joints may be exposed opened and injured Around the injured regions the* parts are bluish or red in *colour and swollen and quickly* become *oedematous firm and hot* to the touch

If the wounds are but slight the inflamation may remain superficial but usually the great danger is a cellulitis associated with pus formation and intermittent fever A more serious complication is spreading or acute traumati gangrene Later as the patient recovers there is the liability of sinus formation and of stiffnesse in the joints and disfiguring scars

It is important to remember that malaria may occur as a complication and that therefore some of the intermittant temperature may at times be due to this cause

There is no difficulty *with regard to the diagnosis as a rule* as there is generally a history to be obtained while the local signs are *sufficiently indicative of* the condition but the *prognosis* with regard to even slight wounds must at first be guarded especially in Europeans as it is impossible to foretell *how serious the intercurrent septic* infection may prove to be although the introduction of the sulphonamide drugs and of the antibiotics have made matters much less serious The *treatment* resolves itself into two distinc categories first the first aid when the rescue is affected and secondly the usual surgical treatment

With regard to the first aid the usual methods for arresting haemorrhage combating shock and carrying the victim are too well known to require repetition but the thorough washing of the wound with water even jungle water would appear preferable to leaving the poison from the animals teeth and claws in the wound A small first aid surgical case containing antiseptics bandages etc and also sulphonamide tablets and antibiotics should form part of the outfit of every sportsman but unfortunately is often forgotton when actually going shooting

As a rule the haemorrhage has more or less abated by the time the man reaches hospital but any possible source of bleeding must at once be attended to and an injection of penicillin given immediately and the the wound thoroughly washed and syringed with warm permanganate (1 2 000) or iodine lotion (one teaspoonful of tr iod to a pint of water) or acriflavine (1 1 000) or some chlorine antiseptic Pieces of dead or sloughing tissue may be removed but it is better to defer any serious operative treatment for twenty four hours if possible as it is very dangerous to perform anything of this nature in the condition of shock usually exhibited by the patient Blood transfusions may save life The parts may be drawn together by a suture if necesary but very few of these should be inserted and as free drainage as possible allowed Repeated and carefully applied antiseptic dressings must be carried out In the past it was always recommended to administer antitetanic serum but it is much simpler to institute at once a penicillin treatment and in this way to combat many infections including tetanus

As soon as there i any suspicion that cellulitis may have supervened free incisions must be made and hot antiseptic baths and hot fomentations must be applied

Amputation is at times necessary if spreading traumatic gangrene supervenes when it must be performed as high up the limb as reasonable as it is useless to do repeated operations first at low and then at higher levels while all the time the disease is spreading Sinuses require to be scraped and plugged with antiseptic gauze and Bipp or Zipp pa te is at times useful Amputatiton however is really seldom necessary if antigangrene serum and antibiotics are available and given in large amounts

When recovery is proceeding and the septic infections have ceased plastic operations are necessary to close the large wounds left by the destruction of the tissues while massage and douches may be required to prevent joints from becoming stiff

As regards the general measures the first requirement of the patient is usually plenty of water to drink to relieve the urgent thir t from which he suffers and to dilute the toxins of the possible into xications

At first food should be of the lightest description — broths soups and milk diet — and later the ordinary hospital diets may be gradually introduced

With regard to *prophylaxis* the natives adopt simple protective remedies such as a bell and spear or a stick and small axe the later being in use in districts infested by the small bear For a sportsman it is important to thoroughly understand the habits of the ferocious creatures which he is hunting and especially to know what they usually do when wounded

In travelling in the African bush a zareba with a fire is usually a good protective during the night

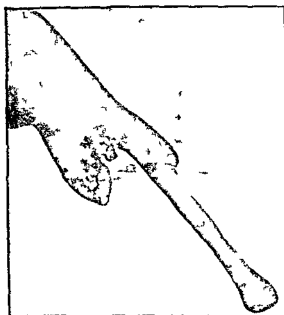
BITES AND OTHER TRAUMATISMS INFLICTED BY THE SMALLER CARNIVORA

Under this heading come the traumatisms caused by members of the family *Canidae* of which *Canis lupus* Linnaeus the wolf *C aureus the jackal and C familiaris* the dog may be quoted Their general dental formula is $\frac{3\ 1\ 4\ 3}{3\ 1\ 4\ 2}$ = forty two teeth A wolf bite resembles that of the larger carnivora while the jackal generally attacks children inflicting severe wounds often of a septic nature The jackal is often infected with hydrophobia which he spreads to the village dogs and in this way the disease is at times kept up in tropical countries

BITES AND OTHI R TRAUMATISMS INFLICTED BY THE UNGULATA

Among the Herbivora there are two famihes which are celebrated for vicious attacks upon man and these are the *Camelidae* and *Bovidae*

Camelus bractrianus Linnaeus may at times have a bad temper and it is often dangerous for a stranger to approach a camel for its



Bite of a Camel

bite is as a rule a erious injury the deep tissues being crushed and lacerated while the bones may be crushed broken or dislocated and the tendons bursae and joints may be laid bare or opened and last but by no means least because of the possibility of gangrene and

severe septic infection The bites generally occur on the upper or lower limbs but are also known on the head and face The shock from such severe injuries is naturally very great but the symptoms signs and treatment resemble those already mentioned under the heading of traumatisms caused by the Carnivora and need not be repeated

Among the Bovidae the buffalo is very dangerous — e g *Bufalus indicus* in India and Ceylon and *Bufalus brachceros* in Central Africa — the danger being deep penetrating wounds of the limb chest or abdomen as well as severe punctured lacerated and contused wounds in any part of the body

Here attention may be drawn to the fact horses may become affected with hydrophobia which is a serious danger The animal appears to be in great pains and is often thought to have colic it froths at the mouth and becomes very savage biting articles in its stable and kicking the wall in a furious manner until weakness sets in

Kicks may produce serious contusions and wounds as well as injuries to internal organs

The Rhinoceri — Rhinoceros indicus R javanicus R sumatrensis R africanus produce most serious punctured and lacerated wounds

Hippopotami are common in the rivers and lakes of Africa — e g *Hippopotamus amphibus* and *H liberiensis* As a rule they are quite peaceful animals when left alone but once attacked they become dangerous seizing the boat or persons in their huge jaws and crusking wood or flesh and bones into shapeless masses They are very couragous and nothing but death will stop the charge of one of these brutes They will quickly stamp the life out of any victim they catch on land

The *Suidae* or pigs are commonly met with in tropical jungles and are of importance because of the way they eat the remains of persons who have been lost in the jungle All the soft parts are completely destroyed while the bones are broken so that it is impossible to say whether the unfortunate people died or were killed whether they met with an accident or simply lost their way whether the pigs ate them while dying or only after death

Severe lacerated wounds can be inflicted by the tusks of an enraged boar

PROBOSCIDAE — The elephants — *Elephantus africanus* and *E. indicus* — usually kill their victim by stamping on him until the soft parts are terribly crushed lacerated and bruised while bones are broken. They also seize people by means of their trunks and lash them against surrounding objects or on the ground.

BITES AND OTHER TRAUMATISMS INFLICTED BY THE LARGER REPTILIA

The crocodiles, gavials and alligators are a constant source of danger in the tropics especially to natives while bathing in rivers. The name crocodile and alligator are often used as though they were synonyms but this is not so. Some twelve species of crocodile are well known. They possess a formidable array of teeth expressed as a rule by the formula $\frac{18}{15}$ of which the third and ninth in the upper jaw are longer than the others and are respectively lodged between the second and third and the eight and ninth teeth in the lower jaw in which the first, fourth and eleventh teeth are the strongest. The muzzle of the crocodile is longer than that of the alligator. The muzzle of the alligator is relatively short and broad.

The muzzle of the gavial is very long. The two species of importance are *Gavialis schlegeli* of Java and Borneo and *G. gangeticus* of Ganges. The latter has a dental formula of $\frac{28}{25}\ \frac{29}{26}$ teeth.

The following list modified from Ditmar gives the names and habitats of these formidable reptiles —

A. Snout extremely long and slender —
Gavialis gangeticus India, *Tomistoma schlegeli* Borneo and Sumatra

B. Snout very sharp slender and triangular —
Crocodilus cataphractus West Africa, *C. johnstoni* Australia, *C. intermedius* Orinoco

C. Snout moderately sharp and triangular —
Crocodilus americanus Mexico, Central and South America, *C. siamensis* Siam and Java, *C. niloticus* Africa, *C. porosus* India and Malaysia

D Snout oval bluntly triangular —
Crocodilus robustus Madagascar *C thombifer* Cuba *C moreletti* Guatemale and Honduras

E Snout broad and short —
Crocodilus palustris India and Malaysia *Osteolaemus tetraspis* West Africa

F Canine teeth of lower jaw fit into a pit in the upper jaw
I Snout as in D *Caiman trigonotus* Upper Amazon *C sclerops* Central and Southern America *C palpebrosus* Tropical South America II Snout very broad and rounded *C latirostris* Tropical South America *C niger* Tropical South America *Alligator mississipiensis* U S A *A sinensis* China

The celebrated man eating species are —
Crocodilus niloticus the Nile crocodile *C porosus* the salt water crocodile

The American species are said to be inoffensive as there are no records of attacks upon man

An important anatomical feature of these reptiles is the length and strength of the tail by means of which they can strike a man standing on the low bank of a river such a powerful blow that he may be knocked into the water

Accidents are commonly met with while people are crossing streams or bathing therein while women are washing clothes or filling vessels with water at the river or lake On the Victoria Nyanza Lake such accidents were quite common Anyone sitting on a steamer or other craft on a lake with his feet hanging over the side or leaning over with his hands in the water simply provides bait for any crocodile in the vicinity

As a rule if the victim is rescued it is found that a portion of a limb has been bitten off but Chalmers and myself observed a case long ago in which only a large portion of the pectoralis major was removed In this case the victim attributed his escape to driving his thumbs into the crocodile eyes The wound healed excellently though of course there was practically no pectoralis left on the side in question and in its place was an area of scar tissue Crocodile bites are not nearly so liable to septic infection as the bites of the Carnivora

BITES AND OTHER TRAUMATI MS INFLICTED BY THE NON POISONOUS SNAKES

Although rarely boas and pythons which are non poisinous and which kill their prey by constriction may attack and crush human beings who accidently come into contact with them They may also bite but their bites cause only traumatic lesions Most boas are generally of gentle disposition and some of them may easily be domesticated they generally hunt rats and other small animals Pythons are much more ill tempered Both groups of snakes belong to the subfamily *Boidae* The boas have no teeth in the praemaxilla and super orbital bones while the pythons have a few teeth in the praemaxilla and possess a pair of super orbital bones

BITES AND OTHER TRAUMATISMS INFLICTED BY SHARKS AND LARGER SELACHII IN GENERAL

By far the greatest number of sharks live in the seas of warm climates and are well known because of the danger of their bite which is often fatal The greatest risk is to bathers and fishermen but it is a curious fact that the divers for pearls appear to incur little risk This was noted by Chalmers and myself many years ago when pearl fisheries were held in Ceylon It is probable that the noise of the large number of people employed in this work frightens the sharks which keep away

Carcharias gangeticus was for a number of years a source of great danger to the crowds at the bathing ghats of Calcutta According to Sir Joseph Fayrer they used to feed upon the partially burned bodies which were formerly thrown into the river but when this custom was discontinued they began to attack people at the bathing ghats especially in the months of April and May when the river contains much salt water He says that they would dash into the crowd at the bathing ghat and inflict dangerous and and at times mortal wounds though they seldom were able to get away their victim because of the numerous people at the ghat

The patient is brought to the hospital suffering from the effects of shock and heamorrhage with a limb either snapped off or partially torn off or with larger or smaller lacerated wounds in which the bones may or may not be exposed and grooved by the sharks teeth and the blood dripping from the ragged surface of the wound Usually the patient is in a state of extreme prostration covered with a cold sweat having a hardly perceptible pulse

More rarely there are only a few triangular or irregular lacerated wounds showing that the shark did not obtain a proper hold of the victim

The great immediate danger is death from shock or haemorrhage If this is avoided the wounds appear to heal readily but at times amputation is necessary Although as a rule there is very little tendency to sepsis penicillin and other antibiotics and sulphonamide drugs should be administerd

Sharks abound in the sea along the coast of French British and Italian Somaliland There is a general belief in those regions that they will attack Europeans but very seldom natives

HUMAN BITES

These are not at all rare especially among African natives both men and women being inflicted during personal and family quarrels The bites inflicted by the Kru men on the West Coast of Africa in quarrels were of not uncommon occurence and it was also fairly common to meet with injuries on the knuckles caused by scratches from their teeth

These wounds were usually considered to be serious for although the teeth of the African appear to be in excellent condition of repair and cleanliness a bite often causes severe septic inflammation

Some years ago Maes in Louisiana investigated the severe injuries produced by human bites In several of his cases there was present a spirochaetic infection and the wounds had a tendency to become gangrenous

Among the negroes in Louisiana especially dreaded are the bites given by members of their race whose gums have a bluish tinge

Lowrie has emphasised the fact that while a human bite frequently gives rise to very serious local and generalized infection tetanus never develops

Tincture of iodine should be applied locally as soon as possible after the bite or a strong solution of potassium permanganate 1 5 per cent or Castellani s fuchsin paint Lowrie recommends cauterization with fuming nitric acid immediately followed by a flushing with cold water but this treatment is very painful and not really necessary If the patient is seen some time after the injury then the best local treatment is by fomentations with carbolic acid 1 per cent or a mercury perchloride lotion 1 2 000 In every case penicillin should be given in large amounts Aureomycin chloromycetin and terramycin may also be given with good results

7 LITTLE KNOWN TROPICAL SKIN DISEASES

Any number of little known skin diseases are found in the tropics and subtropics I will discuss some of them without attempting a proper classification but merely separating them into four groups 1) of bacterial and spirochaetic origin 2) of mycotic origin 3) of parasitic origin (animal) 4) miscellaneous usually of unknown or doubtful origin

DERMATOSES OF BACTERIAL ORIGIN
TROPICAL PYODERMATA

Following the majority of authors I use the term pyoderma as a collective term to indicate any superficial purulent or ulcerative affection of the skin due to cocci of the genera *Micrococcus (Micrococcus pyogenes* var *aureus* and var *albus* usually known as Staphylococci) and *Streptococcus* The pyodermata found in the tropics may be separated into two groups

1) The tropical pyodermata
2) The cosmopolitan pyodermata

Tropical Pyodermata — The chief ones are

1) Pyosis mansoni (Pyoderma mansoni)
2) Pyosis nodularis tropica (Pyoderma nodulare tropicale)
3) Pyosis cupoliformis (Pyoderma cupoliforme)
4) Pyosis *follicularis crurum (Pyoderma folliculare crurum)*
5) Microvesiculosis sparsa cutis glabrae (Pyoderma microvesiculosum)

The tropical pyodermata may occasionally be observed also in the *temperate zone*

The chief cosmopolitan pyodermata are

1) Impetigo
2) Ecthyma

I will briefly discuss only the tropical ones

PYOSIS MANSONI

This disease was described by Patrick Manson in the late seventies of the last century He called it Pemphigus contagiosus tropicalis The disease of course has nothing to do with pemphigus *being much more* closely allied to impetigo Geographically it is found all over the tropics especially in those parts of the tropics which have a hot damp climate such as Ceylon Malaya and Indochina I have occasionally seen cases in countries situated in the Temperate Zone during the summer months e g Louisiana and South Italy and Portugal

Etiology — For *many years there* was *much discussion* on the etiology of the disease Some authors believed it to be due to *Staphylococcus aureus* others to *Staphylococcus albus* Some observers considered the eruption to be caused by a diphtheria like bacillus and a few authors believed the disease to be of leishmanic origin In 1924 in India J *Cunningham* J S Ramakrishman found that in the inci-

pient lesions a streptococcus was present with cultures of which it was possible to reproduce the malady The role of *haemolytic strepto-cocci of Lancefield s group A has been emphasized in recent years*

Symptomatology — In a typical case in both the axillary regions a number of vesicles and bullae are seen The bullae are of rather large size — from a large pea to a large bean The bullae are mostly dome like and their contents are clear Each bulla is surrounded by



Pyosis mansoni

a very narrow zone of erythema The intervening skin between the bullae is normal The eruption does not spread to the face occasionally it may spread to the groins and very occasionally to the chest crusting is practically never noticed

A full clinical description may be found in Castellani & Chalmers Manual of Tropical Medicine London 1919 pag 2018

Treatment — In the old days it was very difficult I remember in Ceylon having had cases where nothing would do any good The

only successful measure was to send the patient to the mountains two or three days after being in a cool climate the eruption would disappear At present the treatment is quite easy the disease answering rapidly to sulphonamides and penicillin In rare cases not answering to this medication a streptococcus vaccine prepared with the streptococcus isolated from the patient or other cases of the disease induces a rapid cure An external application which is very useful and which I have used for years is the following Xeroform or dermatol grm 2 boric acid grm 2 glycerine grm 1 alcohol grm 5 aqua dest grm 100 Shake before using

PYODERMA NODULARE TROPICALE
(PYOSIS NODULO CRUSTOSA TROPICALIS)

(Pyosis nodularis tropica Pseudo-Framboesia Castellani s pyosis)

This disease is known in Ceylon as «Kurunegala Nodules» or «Kurunegala Ulcer» as it is extremely common in the Kurunegala district The first impression on seeing one of these patients is that he is suffering from yaws The whole body is covered with nodular crusty lesions On removing the crusts nodules are seen the size of a pea or bean The nodules however are quite different from true yaws nodules they have a smooth surface while the nodules of yaws have a granular or vegetating surface Moreover in the nodules of pyosis tropica no spirochaetes are found and the Wassermann test is negative The treatment used to be very difficult Penicillin and sulphonamides give good results

A full description of this disease is given in Castellani & Chalmers Manual of Tropical Medicine London 1919 pag 2021

DERMATITIS CUPOLIFORMIS

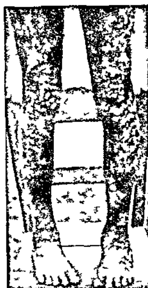
(Pyoderma cupoliforme)

Historical — This disease was first described by me in 1914 as seen mostly in Europeans in Ceylon Subsequently I observed cases in the Balkans

Climatology — So far it has only been reported in Ceylon and in the Balkans

Etiology — It is caused by a streptococcus which I named *S tropicalis* (See Castellani & Chalmers Manual of Tropical Medicine 3rd edition 1919 London pag 2034)

Symptomatology — The disease begins as superficial dusky red follicular slightly itching macules on the feet and legs Some of these



Pyosis nodulo crustosa tropicalis

spots disappear while others become slowly raised hard infiltrated and cupoliform reaching the size of a pea or a very small cherry After a time the centre of the nodules breaks down and forms an ulcer with a reddish floor and undermined edges

These ulcers are somewhat painful and very slow to heal and when this does take place it produces patches of hyperpigmentation

The course of the disease is very long lasting at times more than a year

Diagnosis — The characteristic features of the eruption are the presence of raised hard rather large cupoliform nodules some of which show a central ulcer with undermined edges

The differential diagnosis has to be made from *Oriental sore* by the absence of Leishman Donovan bodies

From *ecthyma* it may be distinguished by the absence or rarity of pustular lesions In ecthyma the initial lesions are always pustular



Pyoderma cupoliforme

consisting generally of discrete flat pustules when these ruptura a brownish crust is formed beneath which suppuration goes on In the condition known as «ecthyma gangrenosum» occasionally developing after varicella and other exanthemata the initial lesions are vesicular os pustular and no nodules are present

In *pyosis nodularis* the ulcers do not show undermined edges and pustular lesions are present

In *purulent folliculitis of the legs there are no ulcers* only pustules pierced by hairs being present

Prognosis — The *condition runs a very long course and in* some cases is difficult to cure

Treatment — In the past this was dificult the only satisfactory therapeutic method being by an autogenous vaccine At present penicillin and other antibiotics give good results

PYOSIS FOLLICULARIS CRURUM

(Tropical Impetigo Bockharti)

On the legs and thighs numerous pustules are seen each transfixed by a hair The eruption is very chronic and very stubborn



Pyosis follicularis crurum (Tropical impetigo Bockhart)

and may last for years After about a year the hair on the legs falls out and is not replaced The skin of the legs takes on a peculiar parchment like appearance becoming smooth and somewhat lucent as if it were gla ed The disease resembles Bockhart s impetigo of temperate climates but is much more serious and may continue for years

Treatment — Sulphonamides penicillin and other antibiotics are useful but the condition does not answer to this medication as quickly

as other pyodermata Local treatment consists in epilation followed by the application of a disinfecting lotion or an ointment such as the following carbolic acid beta naphtol salicylic acid ana grm 0 30 vaseline grm 30

MICROVESICULOSIS SPARSA CUTIS GLABRAE

This condition described by me recently can hardly be called a disease The patient suddenly feels a slight pain — for instance



Microvesiculosis sparsa cutis glabrae

in the right arm At the spot where the pain has been felt shortly after a minute vesicle appears which may be follicular transfixed by a lanugo hair or non follicular surrounded by a very small hyperaemic halo The si e of the vescicle varies from a pin point to a pinhead The contents are at first clear — later they become turbid and then the vescicle or vesiculo pustule on a dark skin appears as a minute white opaque perlacious tiny spot One or two weeks

later the patient again feels a slight p in usually on the other arm and a few hours later a minute vesicle appears identical to the first one This process goes on until perhaps ten or twelve or twenty vescicles are present on the whole body They are widely scattered each vescicle being situated at a great distance from the other The bacteriological examination shows presence of *Staphylococcus albus* never of *Staphyloco cus aureus* or of streptococci

Histologically the vesicle is situated in the horny layer and contains a few lymphocytes and later some polymorphonuclears and some Gram positive cocci

With regarda to the diagnosis the condition is easily differentia ted from Bockhart s impetigo as the latter usually affects the legs its pustules are much larger and they always contain *Staphylococcus aureus* while in Microvesiculosis sparsa *Staphylococcus aureus* is constantly absent

The prognosi is excellent and as regards treatment there is no need of using antibiotics or sulphonamide drugs It is ufficient to sponge the parts with a salicylic acid alcoholic lotion (2 %) followed by the application of a disinfectant ointment to each spot A good ointment is the following

Beta naphtol	Ana grm 0 30
Salicylic acid	
Carbolic acid	
Vaseline	grm 30

BACTERIAL PSEUDOMYCOSES

Some years ago I introduced the term bacterial pseudomycoses (Archives of Dermatology and Syphilology 1928 Vol XVIII page 857) to denote skin affections which clinically resemble mycoses but which are not due to fungi or mycetes they are due to bacteria Of bacterial pseudomyco es two chief clinical types may be distinguished

1) The blastomycetoid type
2) The actinomycetoid type (nocardioid type)

Blastomycetoid type — In this type the lesions are vegetating and can easily simulate blastomycosis A common example is *Dermatitis vegetans* This affection is usually due to the ordinary pyogenic cocci (staphylococci) but in very severe cases of blastomycetoid pseudomycosis bacteria of the genus *Pseudomonas* of the genus *Encapsulatus Klebsiella* and of the genus *Proteus* may be present



Bacterial pseudomycosis blastomycetoid type
a form of dermatitis vegetans

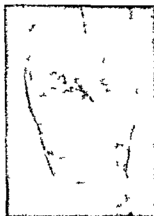
The diagnosis of these cases from true blastomycosis is made chiefly on the following data

1) The granulations are softer and are usually easily wiped off by rubbing the affected parts with a piece of gauze

2) No fungi are found

3) Potassium iodide treatment which is so useful in true blastomycosis has no action whatever on these cases while the continuous local application of a very simple disinfecting lotion such as mercury perchloride 1 in 1 000 frequently cures the disease Castellani s paint gives good results

Actinomycetoid (Nocardioid) type — In this type the lesions may closely resemble agranular actinomycosis (*agranular nocardiosis*) *In a* typical case nodules are present which after a time soften and small absesses form These abcesses rupture and sinuses remain discharging a purulent material A comparatively common variety is that due to *Bacillus typhosus (Eberthus typhosus Ebertella typhosa Salmonella typhosa)* In New Orleans two patients were sent to me with the diagnosis of probable mycosis To my surprise and to the surprise



Bacterial pseudomycosis actinomycetoid (nocardioid) type caused by *M myceticus*

of everyone else no fungi were found instead the typhoid bacillus was grown in pure culture

MICROCOCCUS MYCETICUS PSEUDOMYCOSIS

(Micrococcus myceticus pseudo-actinomycosis)

I may say a few words on a form of pseudo actinomycosis (pseudo nocardiosis) on which I worked at first in New Orleans and in later years in North Africa It is due to a micrococcus which I called *Micrococcus myceticus* The first case I published in the *Archives of Dermatology and Syphilology 1928 Vol 18 page 857*

The individual is in perfect health — suddenly he feels pain in the foot He notices the presence of a red flattened nodule or a



Bacterial pseudomycosis actinomycetoid type due to *Bacillus typhosus (Eberthus typhosus Eberthella typhosa Salmonella typhosa)*

plaque He feels feverish and sick Soon after the temperature shoots up to 103 F and to 104 F with signs of lymphangitis of the leg After 24 hours the temperature becomes normal but the nodule does

not disappear Ten to fifteen days later the nodule softens and bursts and a sinus forms which persists for many months Two or three weeks later another nodule appears lymphangitis develops and the temperature goes up lasting a couple of days After the temperature goes down the nodule persists after a few days it softens and finally opens giving rise to a sinus This pathological process repeats itself until after a year or two practically the whole leg is covered with nodules gummatous swellings and sinuses The skin of the leg beco mes greatly thickened and takes on an elephantoid appearance This variety as I have said of pseudo actinomycosis (pseudo nocardiosis) is caused by a microorganism which I have called *Micrococcus myceticus* and it can hardly be doubted that this organism is the true cause of the condition as in unopened lesions it is the only germ present and *moreover by means of a pure culture of it the disease* was reproduced in a volunteer

The treatment is very difficult Sulphanilamide and penicillin were not known when I studied the cases in New Orleans but in a recent case they have been tried without any benefit The only treatment that gives good results is a vaccine treatment the vaccine *being prepared with the organism isolated from the unopened lesions* of the patient no new nodules develop and the sinuses heal The elephantoid condition however remains unaltered

Cultures of Micrococcus myceticus will be gladly sent to any medical man desiring them

PSEUDOACTINOMYCOSIS SPIROCHAETICA

Clinically the condition is very similar to true actinomycosis of the non granular type Soft nodules and sinuses are found in the region of the angle of the mandible some parts of the face and upper portion of the neck The microscopical examination however reveals absence of fungi while innumerable spirochaetes are present The condition seems to develop after dental affections The best treatment is neorsphenamin Penicillin may also be used

A fairly complete description of the disease may be found in my book Malattie dell Africa Rome 1947

COMMON ULCERS OF THE LEG IN THE TROPICS

This is a very important subject to the tropical physician who is in general practice but until recently it was in a state of great confusion I have worked at the subjet for many years and I have given my results in recent papers published in the Anais do Instituto de Medicina Tropical Vol v December 1948 and in the Journal of Tropical Medicine & Hygiene Vol 51 No 12 pp 245 254 December 1948 Giornale di Medicina Militare (July 1951) Bulletin de la Societe Pathologie Exotique (1952) tome 45 n 2 Mars Avril, p 273

I have grouped the common ulcers met with in the tropics and subtropics as follows

I) Tropical ulcers
II) Cosmopolitan ulcers

The first group comprises the following ulcers

1) *Ulcus tropicum* (true tropical ulcer)
2) *Ulcus veldis* (veld sore desert sore sand sore)
3) *Ulcus pyogenicum* (septic sore)
4) *Ulcus tropicaloides* (tropicaloid ulcer)
5) *Macroulcus perstans* (persistent megaloulcer)

The second group *(cosmopolitan) comprises chiefly*

1) *Ulcus lueticum* (syphilitic ulcer tertiary)
2) *Ulcus varicosum (varicose ulcer)* and *ulcus varicosoid s* (caracosoid ulcer)

I will give brief descriptions of the ulcers of the first group

With regard to ulcers of the second group I will limit myself to stating that ulcus lueticum is still quite common in many parts of *the tropics* while it has become comparatively rare in Europe owing probably to the better treatment of recent syphilis

Ulcus varicosum is as frequent in the tropics as in the temperate zone but there is no doubt that the term has been used very loosely everywhere to cover more than one ulceration I have separated two types *ulcus varicosum sensu stricto* and *ulcus varicosoides* In the latter bacterial infection plays the chief role while in the former it is the back pressure the mechanical element which plays the essential role producing an aseptic process of necrosis

ULCUS TROPICUM

This ulcer is known by many names mostly geographical It is known as Aden sore as Naga sore as Ceylon sore as Madras sore

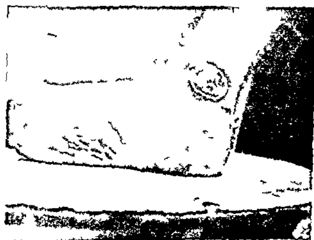


Symbiosis fuso spirochaetica

as Mo ambique sore as Cochin China sore and I might mention another twenty or thirty synonyms It is interesting to note that the condition was apparently known to the ancient Indian medical men In the works of Susruta (600 B C) descriptions are found of ulcers which probably were tropical ulcers

Geographical distribution — The ulcer is very common all over the tropics and especially common in the equatorial or torrid zone It is interesting to note that the sore decreases in frequency the more one goes from the equator towards the north or south

Let us look at the map of Africa You will find that the sore is extremely common in South Somaliland in Kenya Colony in the Tanganica Colony Congo West Africa while the frequency decreases going towards North Africa and in the so called temperate part of North Africa which comprises the most northern portion of Lybia and Cyrenaica the tropical ulcer is practically absent although local practitioners often use the term to denote any ulcerative condition they meet with A few cases have been described in the Balkans and in the South of Italy but they are exceptional



Ulcus tropicum

Etiology — It is generally believed that the ulcer is due to a symbiosis between a spirocraete *(S vincenti* or *S schaudinni)* and a fusiform bacillus known as *Fusiformis fusiformis* or *Fusobacterium Plauti Vincenti* The bacillus was first described by Le Dantec and the spirochaete by Plaut and by Vincent Some authors believe that the true aetiological agent is the spirochaete and they base their opinion on the following fact if histological sections are made from the margins the more one goes towards the periphery the fewer bacilli are present At the extreme periphery only spirochaetes are seen

A few authors however believe that the fusiform bacillus is the true aetiological agent In recent years the theory has been brought forward according to which the disease is not of parasitic origin I do not believe this theory can stand I have seen hundreds of cases of tropical ulcer and I have never noticed that a change in diet and the administration of vitamins produced any definite improvement in the ulcer although it may have improved the general condition of the patient

Symptomatology — The disease begins as a single angry red papule or pustule surrounded by a one of infiltration After 2 3 days the papule or pustule breaks open and by a process of necrobiosis ar ulcer forms which extends rapidly in depth and also on the surface In most cases however after a few weeks the spreading ceases and then the ulcer remains practically of the same si e for months and sometimes even for a year or two In other cases a process of phagedenism sets in and then the ulcer becomes of enormous si e with tremendous destruction of the soft parts of the leg and foot The course is a very protracted one — two or three years — when the ulcer heals leaving usually a thin scar Any slight traumatism may break the scar and the ulcer may start again

Diagnosis — The chief diagnostic points are the following

1) The ulcer is single in most cases
2) Is situated on the lower portion of the leg
3) It is of large si e and deep roundish or ovaloid
4) The margin is usually continuous and often slightly rolled never undermined
5) The fundus is covered by detritus in which spirochaetes and fusiform bacilli are found in enormous numbers

Differential Diagnosis — In practice the ulcer must be chiefly differentiated from luetic ulcer (tertiary) but in luetic ulcer the condition begins with a gumma while in true tropical ulcer it begins with a papulo pustule moreover in luetic ulcer the margins are more cleanly cut «punched out» There are of course exceptions A very

important feature in luetic ulcer is that the Wassermann test is *positive*

Prognosis — Favourable *quoad vitam* but the disease is a serious one as the patient is unable to attend to his work for many months and even years

Treatment — Every few months we hear of a new treatment Unfortunately so far no specific treatment has been found Penicillin is not very successful notwithstanding the many favourable reports published The newer antibiotics also do little or nothing The organic preparations of arsenic and especially arsphenamine and neoarsphenamine have no action Bismuth mercury the iodides are worthless Surgical treatment gives poor results The so called elastoplast treatment is of very little advantage Vitaminic treatment is practically worthless and the same may be said of calcium treatment On the whole the best treatment is still perhaps the old so called Ceylon treatment which later became the routine treatment also in many African countries Warm soaks are given with a potassium permanganate lotion (1 in 2 000) When the ulcer has become clean the so called *protargol* treatment is started viz an ointment is applied twice a day of protargol grm 5 vaseline grm 95 The ointment is applied on a piece of sterile gauze which is kept in place by a light bandage

ULCUS VELDIS

(Veldt sore Diphtheric Desert sore Sand sore)

The term Ulcus veldis has been used in the past to denote any number of different ulcers In recent years it has been restricted to denote an ulcer fairly common in the desert which is of true diphtheric origin The condition is caused by the true toxic *Corynebacterium diphtheriae* as found by Scott very many years ago during the Boer War

Symptomatology — The disease begins with a papulo or papulo pustule which is follicular After a few days the top of the papule becomes necrotic and an ulcer forms which slowly enlarges until it

reaches the size of a sixpenny coin and more It is generally roundish



Incipient ulcus veld s

or ovaloid and at times on the fundus a whitish greyish pseudo



Veld sore *Coryn d phtheriae* was found

membrane is seen which is removed with difficulty In my experience

however the presence of this pseudomembrane is *rather the exception* than the rule The ulcer runs a chronic course Not rarely *the patient* may show signs of paralysis e g of the soft palate *and heart sym* ptoms (arhytmia etc) due to the toxin produced by the diphtheria *bacillus*

Diagnosis — This is based on the bacteriological examination In cases in which pareses are present the diagnosis can be made also clinically

Prognosis — If the correct prognosis is not made and the speci fic treatment not given the ulcer has no tendency to spontaneous cure If the the correct diagnosis is made and the specific treatment given the prognosis is excellent

Treatment — This is very simple antidiphtheria serum by injec tion and also locally It is interesting to note that penicillin has very little action on the ulcer and the results obtained cannot be compared with the efficacy of the antidiphtheria serum

ULCUS PYOGENICUM

(Septic ulcer Pyogenic ulcer)

The term is used to denote ulcers caused by the usual pyogenic cocci staphylococci and streptococci They clinically differ from the ordinary ecthymatous lesions in being more superficial but larger and with the appearance of true ulcers In my experience staphylococci seldom give rise to true ulcers *streptococci do so more frequently* and various clinically different types of streptococcal ulcers have been described also in Europe *and in America It suffices to mention* Mele ney s microaerophylic streptococcus undermined ulcer In the tropics the term *septic sore is used to denote an* ulcer usually of fairly large size (the size of a sixpenny coin to a shilling and more) roundish or ovaloid *somewhat* similar to Ulcus veldis but in which no diph bacilli are found — only staphylococci and streptococci The practitioner makes the diagnosis on the fact that the ulcer yields very rapidly to

the sulphonamides and to penicillin and a simple dressing with mercury perchloride lotion (1 1000) locally



Ulcus pyogenicum

ULCUS TROPICALOIDES

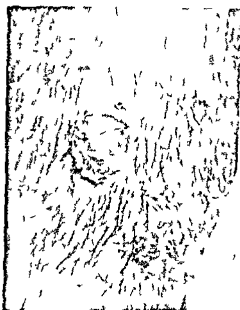
(Ul us myceto des Ul us Castellanii Myceto d Desert Sore Superf cial Trop cal Ulcer Ulcerative dermatitis of Castellani

During the period 1940 1942 there occurred in Lybia and in Cyrenaica numerous cases of a contagious ulcer of the leg — in fact an epidemic The local practitioners called the ulcer *tropical ulcer* although even clinically the ulcer was quite different I investigated the disease and soon came to the conclusion that the ulcer had nothing to do with true tropical ulcer that it was an ulcer of its own caused by a specific coccobacillus which I found and described with the name *Micrococcus (Coccobacillus) mycetoides* My work has been confirmed by several workers among whom V Servino (Ulcera Tropicale Superficiale di Castellani Acta Medica Italiana di Malattie Infettive Vol 1 No 6 Anno 1946)

A fairly complete description of ulcus tropicaloides with numerous illustrations as well as of several other ulcers of the leg may

be found in the Giornale di *Medicina Militare (Rome)* July Special Number 1951 and in the Bulletin Societe de Pathologie Exotique 1952 Vol 45 p 273 Seance du 12 decembre 1951

Geographical Distribution — The ulcer is not found only in Lybia and Cyrenaica I have seen and investigated several cases in

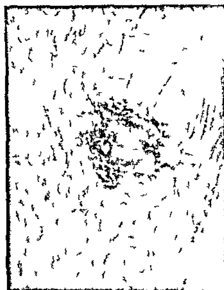


Incipient Tropicaloid ulcer natural

Italy They were coming from a rural district not far from the city of Rome — Abruzzi I have seen two cases in Spain and one case in Portugal

Etiology — If the contents of an initial vesicle or bulla — the disease begins practically always with a vesicle or bulla — are collected by means of a sterile Pasteur pipette and films are made stained with Gram and counterstained with diluted fuchsin numerous coccal and coccobacillary bodies are seen which are stained red they are

therefore Gram negative If the contents of a bulla are inoculated on an ordinary agar tube only a very scanty growth or no growth at all is noticed If trypsin agar is used the growth is more abundant and the organism can be properly further investigated It grows scantily in gelatine the medium is not liquefied it grows fairly well on



Incipient Tropicalo d ul er experimental obtained by inoculating a pure culture of *Micrococcus (Coccobac llus) mycetoide* in a volunteer

coagulated serum without producing liquefaction The organism can be trained to grow in liquid media and then its fermentative reactions can be studied It produces no gas in any sugar acidity in dextrose and various other sugars

Pigment — No pigment production is found on ordinary Italian agar but on Difco agar and especially on glucose difco agar the colonies are yellow If from the yellow cultures ordinary Italian agar

tubes are inoculated the colonies which develop are pigmentless The pigment does not diffuse in the medium

Pathogenicity — The *organism is not pathogenic to the ordinary* laboratory animals — guinea pigs rabbits and rats Its injection by the snbcutaneous or intraperitoneal route does not cause any general symptoms or any local lesions The *organism however is pathogenic* to man and by injection of pure cultures of it is quite easy to reproduce the ulcer The technique is as follows a spot on the leg of the volunteer is scratched *until a little blood is drawn Then two or* three loopfuls of a young agar culture of a recently isolated strain is applied to the spot a piece of sterile dry gau e is put on and kept *in place* with a light bandage Within *six to ten days an ulcer is* produced which is practically identical with the natural ulcer

Symptomatology — In a *fairly well* advanced case on the *lower* two thirds of the leg one or two or three rarely four practically never more ulcers are seen Each ulcer is roundish or ovaloid rather *superficial the size of a sixpenny coin to a shilling The mar*gins are not raised not thickened not undermined They may be continuous or delicately dentellated or crenated The fundus which is *rather shallow is often covered by a thin film of pus occasionally* instead of pus fibrinous pseudomembranes are seen The subjective symptoms are slight a little discomfort and pain in the leg usually *if the ulcer is kept bandaged the patient may attend to his work* There are cases however when the pain is severe and the patient has to be hospitalized

Course — The course is a prolonged one — three to six months occasionally longer It is interesting to note that during the whole course the *regional superficial lymphatic glands are not enlarged* It is also interesting to note that among the hundreds of cases I have seen I have never noted any serious complication I have never seen a case of *erysepelas or lymphangitis* or abscess or septicaemia originating from the ulcer After three to six months from the onset the ulcer usually heals spontaneously leaving a hyperpigmented scar *occasionally* a hypopigmented one The short description I have

given is the usual type of the ulcer but there are several clinical varie ties or types of which I will mention the follo ing

1) The superficial type
2) The plaque like type
3) The eczematous type

In the *superficial type* the initial bulla — the condition begins always with a vesicle or bulla which is not follicular — is very super ficial but of large dimensions When it breaks a raw area remains resembling a large abrasion rather than an ulcer in these cases also the corium must be involved as when it heals the lesion leaves a scar

The plaque like type — In this type there is no real ulcer instead a large roundi h or ovaloid slightly raised plaque is seen with a smooth intact surface From time to time however a few minute ulcers appear on the surface or the plaque which rapidly heal The plaque after three to six months disappears without leaving a scar but leaves usually some pigmentation

The eczematous type — In this type too there are no ulcers instead one or two or three ec ematous roundish or oval patches are seen with a well defined margin (marginated patches) The surface of the patch or patches is covered with minute yellowish cru ts When these are removed an oozing area is seen The secretion rapi dly dries up into minute crusts again The appearance of these patches is practically that of eczema nummulare

Diagnosis — This is based on the symptoms I have mentioned and on the presence of *Micrococcus (Coccobacillus) mycetoides*

Differential diagnosis — The condition must be differentiated chiefly from Ulcus tropicum and Ulcus veldis Ulcus tropicum is a much more serious condition The ulcer is deeper larger and more persistent the microscopic examination show presence of numerous spirochaetes and fusiform bacteria In Ulcus veldis the condition begins usually as a follicular papule and not as a non follicular vesicle and

the bacteriological examination will reveal the presence of the true toxic *Corynebacterium diphtheriae*

Prognosis — Good *quoad vitam* The course however is long three to six months

Treatment — Unsatisfactory Sulphonamides and penicillin have little action The vaccine treatment is not of much use It is a mistake to employ caustics and strong disinfectants On the whole the following *very simple treatment gives the best results* The *patient is* kept at rest for a few days and for three days hot boric fomentations are carried out every four hous When the ulcer or ulcers become clean they are then dabbed with hydrogen peroxide followed by an *ointment consisting of dermatol 4 grms vaseline 26* grms The ulcer is covered with a piece of sterile gauze and lightly bandaged

Cultures of *Micrococcus (Coccobacillus) mycetoides* will be gladly sent to any medical man requesting them They may be obtained also from the American type Culture Collection 2029 «M» Street N W Wash ngton

ULCUS INTERDIGITALE PEDUM

This affection is not rare among natives It was described in *1909* by me and my work was confirmed by *Breinl Martinez and* Lopes An account of it may be found in Castellani & Chalmers Manual of Tropical Medicine (London 1919) pag 2188 The patient complains of some itching between the toes though no papules or vescicles are seen After a few days a fissure appears which rapidly deepens and enlarges *into a large oval ulcer with a* dull dark red fundus and sodden looking margins There is practically no discharge whatever According to some auhorities it is due to an actinomyces (*A keratolyticus)* The ulcer is generally very painful The skin surrounding the ulcers does not show signs of *inflammation* Under proper treatment the ulcer heals in a few days The patient must remains at rest washing the ulcer twice daily with

a one per cent carbolic lotion followed by dressing with a bismuth boric acid ointment

Bismuthi subnitratis	Grm 2
Acidi borici	Grm 1
Vaseline	Grm 30

MORBUS HAEMORRHAGICUS BULLO ULCERATIVUS KELOIDALIS

This grave disease has been described by me in the Anais do Instituto de Medicina Tropical Vol v December 1948 and in the



Large ulcer in a case of morbus haemorrhagicus bullo ulcerativus keloidalis

Journal of Tropical Medicine & Hygiene October 1949 The description was based on two cases (very recently a third case has come under my observation) The patient for two or three days feels

poorly and feverish then he notices the appearance on the legs and other parts of the body of some vesicles and bullae which he says were black from the onset The bullae are of large size — the size of a bean or small chestnut They are tense and of a very dark colour this being due to the haemorrhagic fluid they contain After a time the bullae rupture and ulcers form which are roundish or ovaloid — occasionally quadrangular They are fairly deep have a fine granular surface and the surface is usually covered by a thin film of dark blood Most of the ulcers heal within two or three months leaving



Cheloidal scars in a case of morbus haemorrhagicus bullo ulcerativus keloidalis

scars which are often keloidal A few remain open for many months An ulcer in the second case remained open for eighteen months

The disease is not merely a skin disease It is a general disease From time to time internal haemorrhages take place — especially from the stomach and the intestine In the second case every two or three months the patient had an attack of severe abdominal griping and each attack was followed by the passage of soveral haemorrhagic stools some were red others were black like tar this showing that the haemorrhages were taking place also high up in the small intestine The usual clinical physical and X ray examination of the various internal organs do not reveal much the liver is not enlarged and is

not tender the spleen is not palpable the superficial lymphatic glands are not enlarged

Blood — The examination of the blood shows presence of a certain degree of anaemia of the orthrochromic or hypochromic type which however is never severe nucleated red cells are never seen An interesting feature is that the number of platelets is not decreased or only slightly so In the second case the number was 180 000 per cubic mm — therefore practically normal The haemorrhagic and coagulation times are within normal limits

Course — This is a very protracted one In the second case the disease lasted over 18 months

Diagnosis — The chief diagnostic points are the following

1) The presence of haemorrhagic bullae
2) Presence of deep ulcers
3) Presence of keloidal scars
4) The protracted course
5) The pre ence of a micro organism of the *Pseudomonas* type

Differential Diagnosis — My first two cases were seen by a a number of colleagues and many different diagnoses were offered Usually the disease was considered to be a form of Werlhoff s pur pura or of scurvy The disease is not Werlhoff s pulpura haemorrha gica In purpura haemorrhagica large heamorrhagic bullae and deep ulcers are absent Moreover the number of blood platelets is greatly decreased which is not the case with the di ease I have described

Scurvy — In very severe cases of scurvy bullae and occasionally ulcers may be present but they are generally limited to the lower parts of the leg Moreover scurvy answers rapidly to vitamin C the rapy which has no action whatever on the disease I am describing

Onyalay — The suggestion has been made that the disease is onyalay What is onvalay? It is a haemorrhagic disease fairly common among the natives of Portuguese West Africa It has been found in

recent years also in other parts of that continent especially in Rhodesia the Congo and Tanganica It is a febrile disease running a very short course — 12 to 15 days On the oral mucosa large trabeculated bullae are seen full of blood Very seldom the bullous eruptions are found also on the skin Moreover in onyalay the number of blood platelets is very much reduced

Pemphigus — In Pemphigus vulgaris no deep ulcers followed by keloidal scars are seen In acute pemphigus the course is very short and the disease usually terminates fatally In *Pemphigus mitis* a disease usually of children the bullae do not contain blood the general health is hardly affected and spontaneous cure often takes place at puberty

Prognosis — This is serious Both patients gave us a great deal of anxiety and on several occasions we thought we were going to lose them Fortunately they both recovered It seems therefore that the disease is a serious one but that it has tendency to get cured spontaneously

Treatment — This is very unsatisfactory In the case seen in Africa we tried the sulphonamides without any good result In the case in Italy we tried also penicillin and streptomycin but with very little success The treatment is merely symptomatic

Etiological Researches — In the unopened bullae and also frequently in the ulcers a rod like organism is found always in pure culture It is a motile Gram negative nonsporogenous rod which grows well on all ordinary media For several months after isolation it grows very abundantly producing a crinkled growth at times almost cerebriform on some media such as glycerol agar After some months however of continuous subculturing the organism loses some of its original cultural characteristics It does not grow any longer so abundantly and the cultures are no longer crinkled moreover it begins to produce a greenish pigment not only in glycerine agar but also in other media although never in so called poor agar viz agar prepared with peptone water instead of meat infusion The organism at first appears to be close to *Malleomyces pseudomallei* but later after it

has been cultured for six to eight months it seems to be much more closely allied to members of the genus *Pseudomonas* In contrast to the typical *Pseudomonas aeruginosa* it never produces pigment in poor agar nor in peptone water I considered it at first a new bacterial species but in all probability it is merely a variety or possibly merely a strain of *Pseudomonas aeruginosa* (*P aeruginosa* var *haemorrhagicogenes*) It differs serogically from the three other strains of *aeruginosa* I have in my collection

MACROULCUS PERSTANS

Ulcus perstans

I have had to date five cases of this condition which I have described in the Anais do Instituto de Medicina Tropical de Lisboa Vol vi 1949 The ulcerative process usually begins very gradually but progressively in a small loss of substance in the leg caused by trauma or in a small wound In the patient depicted in the photograph the ulceration slowly developed after a small war wound in the leg during the First World War which never healed

At complete development one or more ulcers of enormous dimensions are seen Typically the outline of the ulcer has a somewhat festooned appearance The ulcer is fairly deep the margons are not undermined the fundus is often granulomatous and may be covered with a thick film of pus in neglected cases true acute phagaedenism is never noted The ulcer is often surrounded by a large one of inflammation with oedematous red skin and well marked venules

Etiology — In all the five cases I have found a pyoceneus similar or identical with the typical *Pseudomonas aeruginosa* as it produces a green pigmentation also in the so called poor media e g agar prepared with peptone water or even simple water instead of meat infusion There are always present other bacteria among which often *Micrococcus afermentans Bacterium albolisbonense Bacterium flavolisbonense* and occasionally *Serratia marcescen* (*Bacillus prodigiosus*) For descriptions of these organisms see Centralblatt fur Bakteriologie Parasitenkunde Infektionskrankheiten und Hygiene I Orig 157 1951

Spirochaetes and fusiform bacilli are completely absent or present only in very small numbers Fungi are not found except occasionally a few yeast like cells of *Candida (Monilia)*

Diagnosis — This is based on the presence on the leg of one or more extremely large ulcer with the characters described above



Case of macroulcus perstans

The important signs for the diagnosis are the slow onset extremely prolonged course extending for years and years the somewhat festooned outline the margins which are neither punched out nor undermined the negative Wassermann test

Differential Diagnosis — The ulcer is often mistaken for tropical ulcer but the tropical ulcer seldom exceeds two years in its course

and moreover true acute phagaedenism is often present and the miscroscopical examination shows presence of numerous spirochaetes and fusiforme bacili

Geometric Necrotic Ulcer of French Authors — This ulcer has cleancut margins and runs a very rapid course with severe signs of acute phagoedenism

Maleney s Chronic Burrowing Streptococcus Ulcer — This ulcer may also show enormous dimensions but the margins are always extensively undermined and the bacteriological examination shows constant presence of a microaerophilic streptococcus

Varicose Ulcer — True large varicose veins may be completely absent in ulcus perstans although some of the superficial minute venules in the inflamed zone around the ulcer may be dilated and inflamed Complete rest in bed has hardly any effect on macroulcus

Veld Sore — Veld sore is of much smaller dimensions than macroulcus and if correctly diagnosed is easily and rapidly cured anti diphtheria serum being specific

Septic Ulcer — This sore is of much smaller dimensions than macroulcus and is easily cured by sulphonamides and penicillin

Tropicaloid Ulcer — Much smaller than macroulcus its duration seldom exceeds three to six months and bacteriological examination will show presence of *Micrococcus (Coccobacillus) mycetoides*

Tubercular Ulcer — This is rare on the leg The inoculation into a guinea pig is usually positive

Amoebic Ulcer — This is an extremely rare ulcer in which *Entamoeba histolytica* is found It answers rapidly to antiamoebic treatment

Leishmanic Ulcer — Rare on the leg Leishmaniae found

Mycotic Ulcers — In ulcers of mycotic origin e g Blastomycosis Coccidiomycosis Paracoccidiomycosis Actinomycosis Histoplasmosis etc laboratory examinations will put in evidence the causative mycetes Potassium iodide is practically specific for most of them In *Macroulcus perstans* fungi are always absent excepting occasionally a few yeastlike organisms of the *Candida* type

Drepanocytosis — In cases of drepanocytosis not rarely an ulcer is found on the leg but it is of much smaller dimensions The microscopical examination of the peripheral blood will show presence of falciform red cells

Prognosis — Favourable quoad vitam but the ulcer has practically no natural tendency to healing and may last for a life time

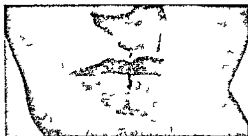
Treatment — This is most unsatisfactory Penicillin in enormous doses is useful Terramycin apparently has no action Aureomycin and chloromycin in a recent case seemed to be useful Local treatment consists in applying a sulphonamide powder after cleaning with hydrogen peroxide

FISSURA LABIALIS MEDIANA

Symptomatology — The condition on which so far as I know there is no literature apart from the papers I have published is characterized by the presence of a fairly deep fissure in the middle of the lower lip which generally begins as an ordinary crack The case runs a chronic course often with periods of apparent quiescence and reactivation A slight amount of exudation may be present but a definite crust seldom forms and apart from the fissure the lip may have a normal appearance and eczematoid lesions are usually absent In some cases the fissure is painful in others there is little or no pain From time to time acute symptoms may appear the fissure then becoming angry looking and the whole lip swollen though generally it does not show diffuse eczematoid lesions The Wassermann reaction is negative

Course — As I have already stated the condition runs a very chronic course in most of my patients it had been present for several years The complaint seems to be more frequent among men than among women and it is more often encountered in adults than in children It appears to be more prevalent in warm climates than in cold countries I have seen cases in Africa in Ceylon and in Europe It is quite common in Louisiana

Etiology — There are three aetiological varieties 1) bacterial 2) mycotic 3) avitaminic The first variety is usually due to the ordinary pyogenic cocci but some cases appear to be due to organisms



Fissura labialis mediana

of the *Bacillus lactis aerogenes* type alone or associated to streptococci or staphylococci The second variety is generally due to fungi of the genus *Candida* The third variety is due to lack of certain vitamins chiefly vitamin B (riboflavin)

Complications — In one instance in New Orleans the fungal infection from the labial fissure spread to various parts of the face including the bones Two sinuses in the left cheek developed from which the same fungus a *Candida* was isolated as had been found in the tissues

Diagnosis — The presence of a fairly deep fissure in the central part of the lower lip without any true eczematoid condition of the lip is characteristic It is differentiated from luetic fissures by the

negative Wassermann and the uselessness of specific antiuetic treatment *Perleche* (stomatitis angularis) affects the angles of the mouth and the parts have a peculiar whitish sodden appearance In my opinion however the two conditions may have a very similar or identical aetiology

Treatment — Treatment *is often difficult The cautious appli*cation of one or two per cent solution of silver nitrate gives the best results The use of glycerine of borax and rose water in equal parts is at times beneficial In certain cases when the mycetic element plays an important role internal administration of potassium iodide seems to be useful In cases of pyogenic origin sulphonamides and penicillin may do good and in cases of avitaminic origin a diet rich in vitamins especially vitamin B_2 should be prescribed

MYCOLOGICAL NOTES

Before discussing certain little known mycoses it may perhaps be advantageous to say a few words on fungi and mycetes in general These remarks being addressed to clinicians and not to mycologists and bacteriologists will be as simple as possible

Fungi as well known are considered to belong to the Vegetal Kingdom although a few authrorities deny this believing them to form a group apart from both the Vegetal and the Animal Kingdom

The Vegetal Kingdom is separated into four sub kingdoms or phylas or divisions

1 — Spermaphyta or Seed Plants (Known also as Phanerogamae or Flower Plants)
2 — Pteritophyta or Fern Plants
3 — Briophyta or Moss Plants
4 — *Thallophyta or thallus plants or* filamentous plants

Thallophyta are generally filamentous plants of simple cellular structure which differ from other plants *in that they do not develop a complex* plant body with differentiation into roots stem and leaves

The phylum or d vision Thallophyta contains three subphyla or subd visions

1 — Algae
2 — Schi omycetes (Bacteria)
3 — Fungi or Mycetes

The *Algae* contain chloroph l a d therefore by a process of photosynthesis they may manufacture the r own food synthesi ing it from carbon d oxide and water w th aid of sunl ght (Photosynthes s)

The *Schi omycetes* o Bacteria are unicellular organisms which do not contain chlo ophyl and therefore cannot synthes e their food and have to l ve as parasites or saprophytes They are m croscop c lly of small d mensions spherical rodl ke comma like wavy screw l ke They do not form true continuous branch ng f la ments On o d nary mic scopical ex mination with the light microscope they do not pos ss well def n d nuclei Th y reproduce by scission (or by sciss on and spores) For the cla s f cation of b teria books on Bacteriology should be consulted

It will suff ce here to stat that at present most autho ties admit f ve orders

1 — Sp al or rod l ke or comma l ke or non flex ble spirals non branch ng — E bact r tes

2 — Rod l ke or f l mentous def n te branch ng or tendency to b anch ng — *Act nomycetales*

3 — Flexible sp rals — *Sp ochaetales*

4 — Coc obac llary g ow only in the p esence of living cells — *R hettr ales*

5 — Inv sible with the ordinary l ght microscope F lter passers — *V rales*

The order *Act nomycetales* contains two famil es 1) the *Mycobact r aceae* — branching sl ght o onlè te dencè to it 2) *Act nomècetaceae* — branching defi nite For conven ence follow ng Vuillem n we place the *Act nomycetaceae* among the Fungi Imperfecti Ord r *M cros phonales*

Myc tes or *Fungi* — Thallophyta wh ch s m larly to the Schi omycetes do not possess chlorophyl nd therefore live s paras tes on l v ng vegetal a d n m l organisms o as saprophytes on dead o gan ms a d d ay ng o g nic matt r They rep oduce by spores ne r by fiss on They g ow us ally forming long b anch ng f laments and possess well d fined nucl e The vegetat e cells of th ng with exception of the Actinomycet ce e are much larger than tho e of the Bacteria

A fungus may be said to consist of two parts a vegetative part usually filamentous (mycelium) devoted to the acquisition of food and a reproductive part represented by the spores and sporogenous structures The term thallus is used to denote the whole plant both mycelium and spores it is also often u ed as a mere synonym of mycelium The mycelial filaments are known as hyphae A hypha

may be sptate or non septate and grows and extends *apically* and proliferates by branching which may be dichotamus or lateral The spores are the reproductive structures and may be compared in a way to the seeds of the higher plants but are merely *spheric oval* or elongated cells with a thin wall containing protoplasm and not a miniature of the plant

The spores are of two types those that are sexual *in origin* and those that are asexual in origin The sexual spores are those formed by the conjugation or fusion of two sex cells or gametes or those in the production of which there is primary *nuclear fusion with reduction* in chromosome number The asexual spores are those which are not the result of the fusion of two sexcells or gametes Practically all *fungi produce asexual spores some produce both asexual and sexual* spores

Sexual Spores — The *more important sexual spores are the ascospores* the *basidiospores* the *zygospores* the *oospores*

The *ascospores* are born in a sac like cell the ascus Usually *the ascus contains 2 or 4 or 8 or a multiple of 8 spores The origin* at times is not sexual

The *basidiospores* are born at the apex of the 2 or 4 slender processes — *one spore on each process — which are found on a spe*cial elongated somewhat claviform structure called basidium which is the sporogenous organ

A zygospore *is formed by the conjunction and fusion of two* morphologically identical celles (isogamets)

The *oospores* derive from the conjunction of two morphologically different structures *the male element or antheridium and the female* element or oogonium The oogonium is a roundish structure with a thick capsule presenting several pores and containing some roundish protoplasmatic masses the oospheres The *antheridium comes into* contact with the oogonium penetrates it and divides into a number of motile bodies antherozoids which fertilize the oospheres which now become oospores

Asexual Spores — The principal ones are the *blastospore* the *arthrospore the chlamydospore* the *hemispore* the *conidium*

Blastospore — This spore is formed by a process of budding On the parent cell a small bud appears which enlarges and becomes a cell identical to the mother cell It may remain loosely attached to it or may become detached but it may multiply by budding whether it remains attached or becomes free

The *arthrospore* originates from the close septation and later disarticulation of a mycelial hypha At first it is generally quadrangular or rectangular later when it has become free it often takes a roundish or ovaloid shape

The *chlamydospore* or *hypnospore* is a large arthrospore undergoing encystment and is produced by a condensation of the protoplasm of the hypha it has often a double contour contains lipoid and other granules its diameter is larger than the diameter of the hypha from which it has originated *Chlamydospores* may be intercalary lateral or apical

The *conidium* is usually a roundish or ovaloid spore which forms on a hypha laterally by a process of gemmation or apically by constriction and abstriction The hypha bearing the conidia is called «conidiophore» When the conidiophore is very short it is generally called a pedicellum

Biological Characters Enzymes — Many fungi produce enzymes with ferments which may induce profound changes in many substances Certain fungi e g *Saccharomyces cerevisiae* and *Saccharomyces ellipsoideus* contain enzymes which will cause alcoholic fermentation of glucose and certain other sugars with production of ethyl alcohol and carbon dioxide

The phenomenon is represented by the well known Gay Lussac s equation



$$C\ H\ O_6 = 2C\ H\ O + 2CO_3$$

Toxins — Production of exotoxins and endotoxins may occur but is never so well marked as among the bacteria

Production of Antibiotic Substances — Secretion of substances lethal or antagonistic to bacteria but seldom to other fungi is noted in a number of fungi especially of the genus *Penicillium* and *Acti*

nomyces It suffices to mention penicillin chloromycin aureomycin terramycin

Immunology — Fungi may act as antigens and allergens In patients affected with certain mycoses agglutination and complement fixation reactions may be noted and also formation of precipitins and of opsonins

Pathogenic Action — Fungi are the causative agents of a number of diseases in plants and animals especially the former

Fungi as Agents of Disease in Man — In man diseases of fungal origin are not so common as diseases of bacterial or protozoal origin though they are of great importance especially in tropical pathology It suffices to mention the blastomycoses the mycetomata and the tineae Fungi may attack any organ and system of the human body the integumentary system being the most frequently and the nervous system the most rarely affected Diseases of fungous origin are known as *mycoses* and may be classified into two large groups *internal mycoses* and *external mycoses* or *dermatomycoses* The *dermatomycoses* may be subdivided into (a) the *dermatomycoses sensu stricto* in which the skin is affected and not the hair (b) the *trichomycoses* in which the hair is affected and not the skin (c) the *dermotrichomycoses* in which both skin and hair are affected

Fungi parasitic of the skin and hair are known as *Ectophytes* those of the internal organs as *Endophytes* It must be kept in mind however that the same fungus may at times attack the skin as well as the internal organs — *Sporotrichum schencki Coccidiodes immitis Candida* etc

Symbiosis — We use the term symbiosis *sensu lato* to indicate the living together of two organisms in close association their close association apparently not being detrimental to either of them

Symbiosis *sensu stricto* means that the association is obligatory and not only is not detrimental but is also mutually beneficial

The term *synergism* is used by some autsors when the combined action of two or more organisms effects changes which each by itself is incapable of achieving

A number of fungi are capable of living in symbiosis Botanists years ago discovered that certain plants — the lichens — represent a symbiosis of a fungus and an alga They also found that symbiosis plays an important role in the nutrition processes of numerous plants and in the germination of certain seeds

Symbiotic Gas Fermentation Phenomenon (Castellani s Symbiotic or Synergistal Gas Fermentation Phenomenon) — This phenomenon has been described by Castellani It may be defined as follows with certain species of bacteria and fungi two organisms neither of which alone produces gas fermentation in certain carbohydrates may do so when living in symbiosis or artificially mixed together For examples *Aspergillus* (sp) does not produce gas fermentation of maltose (acidity only) *B morgani* (*B morgani* No 1) does not touch maltose does not gas ferment this rugar The mixture *Aspergillus* + *B morgani* will produce gas though slowly *Bacillus typhosus* alone does not produce gas fermentation of mannitol (acidity only) *B morgani* does not produce fermentation in that substance (neither acid nor gas) the mixture *B typhosus* + *B morgani* will produce gas The symbiotic gas fermentation phenomenon occurs only with certain species of fungi and bacteria

TAXONOMY — Every individual plant and therefore every fungus belongs to a species *(Species)* every species belongs to a genus *(Genus)* every genus to a family *(Familia)* every family to an order *(Ordo)* every order to a class *(Classis)* every class to a division *(Phylum)* every division *(Phylum)* to the vegetale kingdom *(Regnum vegetabile)* A species may contain several varieties *(Varietas)* forms *(Forma)* and races or biological forms *(Forma biologica)* A genus may contain several subgenera *(Subgenus)* a family several subfamiles *(Subfamilia)* and tribes *(Tribus)* an order several suborders *(Subordo)* a class several subclasses *(Subclassis)* a division several subdivisions *(Subdivisio)* The complete list of categories is therefore using the latin terms as follows

Regnum vegetabile Divisio (Phylum) Subdivisio (Subphylum) Classis Subclassis Ordo Subordo Familia Subfamilia Tribus Subtribus Genus Subgenus Sectio Subsectio Species Subspecies

Varietas Subvarietas Forma Forma Biologica Forma Specialis Individuum

The names of orders end in *ales* those of Suborders *ineae* those of families *aceae* The species is designated by a binomial the first portion of which is the *generic name* while the second portion is the *specific name* The generic name *(Genus)* should be written with a capital letter the specific name usually with a small letter A fungus may be transferred from one genus to another but the specific name remains the same it cannot be changed The rules of nomenclature are given in detail in the supplement to the Journal of Botany June 1934

CLASSIFICATION OF MYCETES (FUNGI)

In practice the Subphylum or Subdivision Mycetes may be separated as follows

Subphylum or Subdivision MYCETES (Fungi)
- *Superclass* I vegetative body a multinucleated naked plasmodium — MYXOMYCETES
- *Superclass* II vegetative body not a naked plasmodium and typically filamentous — EUMYCETES

The fungi parasitic of man belong to the Eumycetes This superclass contains four classes

EUMYCETES *(Fungi sensu medico)*
- Mycelium continuous non septate
  - Reproduction by Zygospores and asexual spores — Class PHYCOMYCETES
- *Mycelium septate*
  - Reproduction by Ascospores — Class ASCOMYCETES
  - Reproduction by Basidiospores — Class BASIDIOMYCETES
  - Reproduction by Asexual spores — Class ADELOMYCETES or FUNGI IMPERFECTI

The fungi found in human mycoses may belong to practically any of the classes mentioned except the Basidiomycetes which do not occur in man or only exceptionally

CLASS I *PHYCOMYCETES* De Bary 1856

Definition — Fungi with mycelium continuous not septated Two families are of medical interest 1) Asexual spores in typical sporangia columella present — Family *Mucoraceae* 2) Mycelium absent or rudimentary — Family *Chytridiaceae*

FAMILY *MUCORACEÆ*

These organisms have a ramified thallus branches taking origin laterally or by dichotomy Some species are provided with *rhizoids* root like hairs by which they are attached to the surface on which they grow From the mycelium some aerial branches called gonidiophores take origin each of which supports on its distal extremity a pear shaped globular or claviform sporangium called *gonidangium* The sporangium is at first separated from the gonidiophore by a septum which later protrudes into the lower portion of the sporangium to form a variously shaped structure termed *columella* The sporangiophore may present beneath the columella a funnel shaped expansion referred to by some authors as *apophysis*

Inside the sporangium or gonidangium *endospores* or *gonidia* develop by cell formation They are known as sporangiospores and they are asexual in origin

The sporangial protoplasm not used in the formation of endospores gives rise to a peculiar mucilaginous substance which at a later period by absorption of water causes the bursting of the sporagium Each endospore or gonidium when it has become free gives rise to a mycelial tube by germination This mycelial tube or hypha ramifies and a new mycelium is formed

Reproduction may take place also by means of zygospores

Classification — Four genera of Mucoraceae are found to contain species parasitic on man —

Family *Mucoraceae*
- Mycelium ramified no rhizoids — *Mucor*
- Mycelium non ramified with or without rhizoids sporangia pyriform the peduncle supporting the sporangium terminates in a special formation encircling the base of the columella — *Lichtheimia*
- Mycelium with rhizoids columella ovoid — *Rhizomucor*
- Mycelium with rhizoids columella hemispheric flattening and shaped like a mushroom after dehiscence — *Rhizopus*

From a medical point of view the most important genus is *Mucor*

GENUS MUCOR Micheli 1729

Mucoraceae with ramified mycelium absence of rhizoids stolons or runners not formed sporangiophores simple or branched sporanqia borne apically on the sporangiophore and its branches formation of zygospores from equal gametes usually heterothallous

MUCOR MUCEDO Linnaeus 1764

Synonyms — *Mucor vulgaris* Micheli 1729 *M sphaerocephalus* Bulliard 1791

The colonies on glucose agar are white or silvery white at first later greyish or blackish grey

The hyphae carrying sporangia (sporangiophores) are long and erect The sporangium is globular 100 to 200 μ in diameter its colour brownish its surface covered by fine minute crystals of oxalate of calcium The spores (gonidia) are elliptical with a smooth surface The columella is ovoid shaped and generally yellowish Occasionally very large zygospores may be observed

The spores are usually 6 12 × 3 6 μ hyaline the columella 70 140 × 50 80 μ hyaline or slightly yellowish zygospores spherical 90 25 in diameter with black membrane and uncoloured contents This fungus liquefies gelatine and certain strains of it seem to be capable of inducing a slight degree of alcoholic fermentation in glu cose and other sugars

M mucedo L is very common living in organic substances in decomposition for instance horse dung It is the cause of a deadly disease in bees the so called mucorine or «May s disease» It is sel dom found in man but it may although very rarely cause a broncho pulmonary mycosis

This fungus has not rarely been found saprophytic in the vagina of women who work in farmyards and stables

In practice Mucor mucedo is recogni ed chiefly by its unbranched sporangiophore and the ovoid or cylindrical shape of its columella It is a heterothallous species It produces proteolytic and fat splitting en ymes It induces decomposition of leather and is often isolated from retting flax It is believed to play a role in the ripening of snuff

It is as a rule easily isolated from fresh horse dung

Other species — *Mucor racemosus* Fresenius 1850 *Mucor paronychius* H Sutherland Campbell and O A Plunkett 1934 *Mucor pusillus* Lindt 1886

GENUS LICHTHEIMIA Vuill m n 1904

Mucoraceae with non ramified mycelium rhi oids may be pre sent or not peduncle supporting sporangium terminates in a forma tion encircling the base of the columella

The type species is *Lichtheimia corymibifera* (Cohn 1884) Some authorities identify this genus with the genus *Absidia* Tie ghem 1876

Other species are — *Licthemia corymbifera* (Cohn 1884) Vuille min *Lichtheimia ramosa* Lindt 1886 Vuillemin *Lichtheimia cornealis* (V Cavara and Saccardo) 1913

GENUS RHIZOMUCOR Lucet and Costantin 1900

Mucoraceae with presence of rhizoids columella of ovoid shape Some authorities consider all the members of this genus to belong to the genus Rhizopus and omit it from the generic classification of the Mucoraceae

Type species — *Rhizomucor parasiticus* Lucet & Constantin 1900

FAMILY *CHYTRIDIACEÆ*

Definition — Phycomycetes with mycelium absent or rudimental

Ashworth s investigations have shown that *Rhinosporidium seeberi* the parasite causing a variety of nasal polypus is not a protozoon but a fungus The classification of this fungus is very difficult but following Brumpt I have temporarily placed the genus *Rhinosporidium* in the class Phycomycetes subclasse Oomycetes family Chytridiaceae Langeron and Brumpt place in the same family the genus *Coccidioides* but in my opinion *Coccidioides* presenting a large amount of septate mycelium in culture cannot be placed in this genus

RHINOSPORIDIUM SEEBERI Wernicke 1900

Synonyms — *Rhinosporidium kinlealyi* Minchin and Fantham 1905 *Coccidium seeberi* Wernicke 1900 (?) *Rhinosporidium equi* Zschokke 1913

Rhinosporidium was discovered in 1896 by Dr Guillermo Seeber in Buenos Aires in a nasal polypus in a young man of nineteen years of age In 1900 he published a description of the parasite and in the same year Wernicke gave it the name of *Coccidium seeberi*

Morphology — Inside the polypus mass the parasite is present in the form of small white spherical bodies of very variable size The smallest are only 6 microns in diameter they have a chitinoid membrane and the cytoplasm is vacuolated and has a vesicular nucleus

The largest spherical bodies which are now considered to be ripe sporangia measure 300 microns in diameter they have a well marked membrane sometimes striated They contain thousands of spores in a medium of mucoid substance The spores have one nucleus They contain refringent spherules which are in reality proteic reserve granules and are partially siderophile When the spores are ripe they are discharged through a single pore in the sporangium They spread in the tissues become spherical and gradually increase in si e The nucleus divides many times and in contrast to what one observes in the Neosporidia nuclear mitoses are simultaneous Attempts at cultivation have so far failed

CLASS II *ASCOMYCETES*

These fungi are characterised by their mode of reproduction — vi by spores originating inside special cells called asci The spores (ascospores endospores gonidia) inside the asci are generally four or eight or a multiple of eight While these fungi live a parasitic life usually no asci are found and reproduction takes place mostly by blastospores and conidia The fungi belonging to this order are often pleomorphic their morphological characters changing according to the medium on which they live

The following families are of medical interest Saccharomycetaceae Endomycetaceae Gymnoascaceae Aspergillaceae

FAMILY *SACCHAROMYCETACEÆ* Reess 1870

D finition — Vegetative cells single or loosely attached in irregular colonies mycelium not usually developed asci isolated not differentiated from vegetative cells each cell may develop into an ascus containing usually 1 to 4 rarely 12 ascospores

Classification — The family contains thirteen genera of which only four — *Saccharomyces* Meyen 1837 *Debaryomyces* Klocker 1909 *Zygo acch romyces* Barker 1901 and *Hansenula* Sydow 1919 (*Willia* Hansen) — contain species parasitic on man

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GENUS SACCHAROMYCES Meyen 1837

Definition — No proper mycelium Cells spherical ovoid or elongate Reproduction by budding and by ascopores Asci usually parthenogenic with 1 4 ascospores spherical or ovoid smooth Very occasionally spores copulate before germinating Gas fermentation of glucose and levulose and often of saccharose and other carbohydra tes Occasionally rudimentary mycelial tubes present with transverse septation The type species is *Saccharomyces cerevisiae* Meyen 1897

Comparatively few members of this genus are pathogenic to man and the pathogenic species described are difficult to identify and determine We may mention *Saccharomyces blanchardi* and *S granulatus*

SACCHAROMYCES BLANCHARDI Guiart 1906

Found in 1903 at an operation by Blanchard Schwartz and J Binot on a patient who had been considered to be suffering from tubercular peritonitis The fungus had produced in the peritoneum a large whitish gelatiniform mass weighing about a kilogramme Microscopically the organism was present in the shape of oval or roundish cells 1 5 to 20 μ in diameter some budding surrounded by a mucilagionus capsule

The fungus grew well on all sugar media

On maltose agar it produced crateriform colonies of a snow white colour Presence of asci with eight spherical spores On gelatine mucoid like colonies of greyish colour Slow liquefaction of the medium On potato mucoid growth whitish darkening after a long time On carrot growth viscid abundant pathogenic to rabbits in which it induced a general mycosis terminating fatally

Many authoridies consider the fungus to be *Cryptococcus* vel *Torulopsis neoformans* Sanfelice

SACCHAROMYCES GRANULATUS Vuillemin and Legrain 1900

Observed by Vuillemin and Legrain in a tumour of the submaxillary bone Cells ovoid 4 5 μ in length and 3 4 μ in breadth Cul

tures pinkish or pinkish red ascospores and chlamydospores present Gelatine not liquefied Sugar reactions not given The principal characteristic of this saccharomyces is the cell membrane being covered with regular or irregular granulations The asci usually contain 2 or 4 ascospores It has been suggested that this organism was in reality *Cryptococcus* vel *Torulopsis neoformans* Sanfelice

GENUS HANSENULA Sydow 1919

Synonym — *Willia* Hansen 1904 not *Willia* Mull

Definition — Saccharomycetaceae with ascospores lemon shaped or bowler hat shaped In media containing sugars do not usually produce alcoholic fermentation but an ethereal fermentation with liberation of aromatic ethers hence cultures emit a pleasant fruity sweet odour Nitrates assimilated growth in ethyl alcohol Aerobic and facultative anaerobic Produce surface pellicle in liquid media Vegetative cells Gram positive ascopores often partially acid fast

Multiplication by sprouting with sprout cells (blastospores) often remaining close together forming chains

Type species — *Hansenula anomala* (Hansen 1891)

Synonyms — *Saccharomyces anomalus* Hansen 1891 *Willia anomala* Hansen 1904 *Saccharomyces beauverei* Froilano de Mello 1912

Has been isolated from beer milk cane sugar molasses margarine sputa faeces Cells oval or roundish 3 8 × 2 5 6 Pseudo mycelium often found In sugar liquid media the fungus forms a well marked membrane containing air bubbles Optimum media for sporulation are carrot and prune agar Asci spherical with 2 4 spores typically cucullate of the so called bowler hat like type about 2 μ in maximum diameter

Pathogenicity doubtful

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B Mycelium well developed —
- I Asci formed after zygosis — *Eremascus*
- II Asci formed asexually —
  - (a) Asci 4 spored — *Endomyces*
  - (b) Asci 8 spored — *Oleina*
  - (c) Asci with a large number of spores — *Cocci dioides*
  - (d) Asci with multiple tubercles in tissues — *Para coccidioides*
  - (e) Asci with multiple tubercles in cultures — *Histo plasma*

At present *Paracoccidiodes* and *Histoplasma* have been removed from the family and it is doubtful whether *Coccidiodes* belongs to it but for convenience I propose leaving it in the family temporarily

GENUS ENDOMYCES Rees 1870

Definition — Endomycetaceae with mycelium abundant rami fied or not simple or septate Asci with four spores Reproduction also by external spores blastospores and spores situated inside the mycelial tubes (endoconidia) in some cases

Remarks — Vuillemin believed at one time that the thrush fun gus belonged to this genus Researches carried out by Castellani and Pinoy and others have demonstrated that the condition known as thrush is caused by fungi which do not reproduce by ascospores and as later stated by Pinoy and Vuillemin himself belong to the genus *Monilia sensu medico* (= *Candida*) For the fungus isolated once by Vuillemin which has all the characteristics of the genus *Endomyces* Landrieu suggested the term *Endomyces vuillemini* Lan drieu 1912

GENUS COCCIDIOIDES Rixford and Gilchrist 1896

Definition — Endomycetaceae which in the tissues have no mycelium appearing in the form of globular cells 3 80 μ in diameter

GENUS DEBARYOMYCES Klocher 1909

Cells spherical small Vegetative *reproduction by blastospores* Asci formed by isogamous or heterogamous copulation occasionally parthenogenetic they contain only one ascospore which is spherical has a verrucose surface and often presents a central oil globule

A large number of species of Debaryomyces parasitic in man have been recorded but in practice their identification is most difficult A diagnostic key of the four more important species is the following —

A Saccharose gas fermented —
   Growth on glucose agar white at first later bister or deep brown — *hudeloi*
   Growth on glucose agar remains white or light coloured — *mucosus*

B Saccharose not gas fermented —
   Glucose gas-fermented (slightly) — *kloeckeri*
   Glucose not gas fermented — *matruchoti*

This genus Debaryomyces might have become of great medical importance if the researches of Todd and Hermann (1936) and later other observers should have been confirmed These researches appeared at first to show that *Torulopsis* vel *Cryptococcus neoformans* (Sanfelice) was a *Debaryomyces*

FAMILY *ENDOMYCETACEÆ*

Definition — Mycelium generally well developed multiseptate asci usually 4 8 spored spores one celled

At one time three *genera of great medical* interest were placed in this family viz *Coccidiodes Paracoccidiodes Histoplasma*/ and the following key was often quoted

A ycelium poorly developed — *Podocapsa*

B Mycelium well developed —
  I Asci formed after zygosis — *Eremascu*
  II Asci formed asexually —
    (a) Asci 4 spored — *Endomyces*
    (b) Asci 8 spored — *Oleina*
    (c) Asci with a large number of spores — *Coccidioides*
    (d) Asci with multiple tubercles in tissues — *Paracoccidioides*
    (e) Asci with multiple tubercles in cultures — *Histoplasma*

At present *Paracoccidiodes* and *Histoplasma* have been removed from the family and it is doubtful whether *Coccidiodes* belongs to it but for convenience I propose leaving it in the family temporarily

GENUS ENDOMYCES Rees 1870

Definition — Endomycetaceae with mycelium abundant ramified or not simple or septate Asci with four spores Reproduction also by external spores blastospores and spores situated inside the mycelial tubes (endoconidia) in some cases

Remarks — Vuillemin believed at one time that the thrush fungus belonged to this genus Researches carried out by Castellani and Pinoy and others have demonstrated that the condition known as thrush is caused by fungi which do not reproduce by ascospores and as later stated by Pinoy and Vuillemin himself belong to the genus *Monilia sensu medico* (= *Candida*) For the fungus isolated once by Vuillemin which has all the characteristics of the genus *Endomyces* Landrieu suggested the term *Endomyces vuillemini* Landrieu 1912

GENUS COCCIDIOIDES Rixford and Gilchrist 1896

Definition — Endomycetaceae which in the tissues have no mycelium appearing in the form of globular cells 3 80 μ in diameter

with a well defined double contour Inside the cells which ~~may be~~ by some authorities considered to be asci numerous endogenous roundish or ellipsoid spores form which become free on the dehiscence of the capsule In cultures abundant septate mycelium present asci usually absent no conidia

No trace of sexuality is noted but Ciferri and Redaelli and Castellani and Jacono have reported isogamous conjugation

Types Species — *Coccidioides immitis* Rixford and Gilchrist 1896

Classification — Most authorities admit only one species *C immitis* others one species *C immitis* with several varieties According the latter hypothesis the classification would be as follows *Coccidioides immitis* var *immitis* *C immitis* var *louisianoideus* *C immitis* var *meteuropeus* *C immitis* var *metamericanus* *C immitis* var *multifermentans* The last one is the only one which will probably remain either as a variety or a *forma biologica*

COCCIDIOIDES IMMITIS Rixford and Gilchrist 1896
(COCCIDIOIDES IMMITIS var IMMITIS)

Synonyms — *Coccidioides pyogenes* Rixford and Gilchrist 1896 *Megalocitosporides* Wernicke 1892 *Coccidium neoplasicum* Canton 1897 *Posadasia esferiformis* Canton in Posadas 1898 *Oidium coccidioides* Ophuls 1905 *Oidium protozoides Ophuls* 1905 *Zymonema immitis* Froilano de Mello and Fernandes 1918 *Mycoderma immite* Verdun and Mandoul 1924 *Coccidioides esferiformis* Moore 1932 *Geotrichum immite* Agostini 1932

Remarks — This fungus was discovered by Wernicke in Buenos Aires in 1892 in a patient affected with skin lesions somewhat resembling tuberculosis The study was completd by his pupil Posadas The organism was considered to be a protozoon In 1896 the same organism was found in a case in North America by Rixford

and Gilchrist and was called *Coccidioides immitis* by them This organism is the causative agent of a very severe mycosis (Coccidioidosis Wernicke s blastomycosis Coccidioides blastomycosis) It has been found in South and North America (chiefly California) but closely allied species probably strains of the same fungus have been found in Europe by Castellani and Jacono and others

Description — In the tissues the fungus appears with characters given in the definition of the genus — vi under the form of roundish bodies or «cysts» of various size 3 80 μ with a well marked double contour some of them containing a large number of roundish or ellipsoid small spores no mycelium In cultures the fungus is easily cultivated on glucose agar and most of the other ordinary laboratory media no asci are present while a large amount of mycelium is present without conidia The growth on glucose agar is white or greyish white occasionally of a fawn colour with a fluffy surface On potato and carrot the colonies are usually white and fluffy In glucose broth the fungus grows both on the surface and at the bottom of the tube In hanging drop cultures abundant mycelium develops no conidia The usual average breadth of the mycelial threads is 2 μ with a maximum of 3 and minimum of 1 5 The threads are hyalyne with no branching or very slight at times collected in bundles the hyphae being parallel to each other (coremia) The hyphae contain minute refringent granulations Later arthrospores are formed varying in length from 6 to 9 μ and easily separated Some racquet mycelium is also often present Large cystiform chlamydospores can be seen containing fat droplets Their size is usually 5 8 μ but larger forms may be noted No conidia are present Milk is neither digested nor clotted it is very often rendered alkaline Gelatine and serum are liquefied rapidly within three or four days from date of inoculation No gas and no acidity produced in any sugar and other substances tried viz glucose levulose maltose galactose saccharose lactose mannitol glycerol inulin dulcitol rhamnose xylose inositol adonitol arabinose amygdalin salicin sorbitol raffinose dextrin erythritol

Endosporulation may occasionally take place in culture when the fungus is grown under anaerobic conditions in ascitic fluid or in gelatine containing pieces of tissue

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A Ascomycetes type —
With perithecia and asci — Tribe 1 Gymnoa caceae Cas tellani and Chalmers 1919

B Fungi imperfecti type —
Without perithecia or asci on ordinary media Reproduction asexual by mycelial and conidial spores — Tribe 2 Tricho phytoneae Castellani and Chalmers 1918

The first tribe includes the genera *Myxotrichum* Kun e 1823 *Gymnoascus* Baranet ky 1872 *Ctenomyces* Eidam 1880 *Amau roascus* Schroeter 1893 *Arachniotus* Schroeter 1893 and *Eidamella* Matruchot and Dassonville 1901 but these are not directly concer ned with tropical medicine The second tribe is of great medical importance as it contains the ringworm fungi

TRIBE TRICHOPHYTONEÆ Castellani and Chalmers 1919

Classification — The tribe Trichophytoneae contains 5 genera *Microsporum* Gruby 1863 *Trichophyton* Malmsten 1845 *Epi dermophyton* Lang 1829 *Achorion* Remak 1845 *Endodermophyton* Cast 1911 The last two have been merged in the genus *Tricho phyton* by many authorities

GENUS MICROSPORUM Gruby 1863

Macroconidia (closterospores multisephate conidia «fuseaux») and microconidia present in cultures Macroconidia fusiform with surface showing minute hair like asperities microconidia usually not very abundant sessile Two principal species —

1 — Found in man not in animals colony with satiny aspect and several grooves radiating from the centre *M Audouini* Gruby 1843

Pathogenicity — Causes Coccidioidomycosis or Posadas Disease
Coccidioides immitis Rixford and Gilchrist var *multifermentans* Cast

Synonym — *Geotrichum multifermentans* Cast 1933 This fungus grows well on all ordinary media On glucose agar the growth is usually fluffy and is of a white whitish grey or greyish brownish colour Gelatine and serum are not liquefied at least not within the first fifteen days from date of inoculation The growth on mannitol agar does not show a definite pigmentation of the medium In hanging drop cultures (peptone water) a large amount of mycelium is present no conidia or aleurio conidia are seen The width of the hyphae varies between 2 and 4 μ Arthrospores may be observed also chlamydospores

Fermentation Reactions — It produces within ten days distint acidity (never gas) in a large number of carbohydrates viz Glucose Levulose Maltose Galactose Saccharose Lactose Mannitol Glycerol Inulin Dulcitol Rhamnose Inositol Adonitol Arabinose Amygdalin Salicin Sorbitol Raffinose Dextrin Erythritol Xylose

This fungus is probably merely a forma biologica of *Coccidioides immitis* Sugars are never acidified by the typical *immitis*

FAMILY *GYMNOASCACEÆ* Baranetzky 1872

Definition — Peridium composed of loose hyphae at the extremities of which the asci are situate or without perithecial or ascal formation and reproducing (as far as is known) as a rule by mycelial or conidial spores

Type Genus — *Gymnoascus* Baranetzky 1872

Classification — From the definition given above it is obvious that the family is capable of being divided into two tribes as follows —

GENUS EPIDERMOPHYTON Lang 1879 em Sabouraud 1917

Macroconidia abundant claviform smooth microconidia absent Only one species colony showing a canary yellow tinge — *E floccocum* Harz the cause of Tinea cruris

GENUS ACHORION Remak 1845

On ordinary media macroconidia and microconidia ab ent practically only mycelial hyphae Only one species *A shoenleini* causes favus

GENUS ENDODERMOPHYTON Ca tellani 1910

On ordinary media only mycelium and microscopically and culturally closely resembles *Achorion* but biologically very different giving rise to Tinea Imbricata a disease totally different from favus no two diseases could clinically be more different

It is generally stated that there is only one species *concentricum* R Blanchard This is however in reality a *nomen nudum* as Blanchard merely gave the name *en passant* without any description microscopic or cultural (the fungus had not yet ben cultivated)

In my opinion the correct nomenclature is *Endodermophyton tropicale* Cast 1910 — with two varieties *tropicale* and *indicum*

FAMILY *ASPERGILLACEÆ*

Two genera of medical importance *Aspergillus* Micheli 1729 and *Penicillium* Link 1809

GENUS ASPERGILLUS Micheli 1729

Conidiophore terminates in a roundish or ovaloid expansion supporting numerous claviform structures each of which abstricts at its apex a chain of conidia (basipetal formation)

2 — Man gets infected from animals and man colony with fluffy aspect lanuginous or at times cottony — *M felineus* C Fox & Blaxall 1896 (= *canis* = *lanosum*)

GENUS TRICHOPHYTON Malmsten 1845

Macroconidia and microconidia present macroconidia somewhat claviform with smooth surface Microconidia often abundant pedicellate at times in clusters «en grappe»

Numerous Species — A simple scheme suggesting in practice the chief ones is the following

1 *Colony not definitily pigmented*

1	Crateriform	*T tonsurans* Malmsten 1845
2	Acuminate	*T sabouraudi* Blanchard 1895
3	With numerous radiating tapering extensions at periphery pyogenic	*T mentagrophytes* Ch Robin 1853
4	Cottony or woolly aspect found in tinea pedis	*T pedis* Ota 1928 (=*interdigitale*)

2 *Colony definitely pigmented*

1	Violaceous	*T violaceum* Bodin 1902
2	Red or purplish red	*T rubrum* Cast 1909
3	Rusty colour	*T ferrugineum* Ota
4	Reddish centre surrounded by sulphur yellow zone	*T sulphureum* C Fox 1908
5	Chestnut colour	*T batonrougei* Cast 1934
6	Greyish blackish fluffy thin mycelium	*T tenuishypha* Cast 1939

GENUS *ACTINOMYCES* SUBGENUS *NOCARDIA*

Aerobic Numerous species among which *asteroides madurae pelletieri* wich are often found in cases of Madura Foot or Mycetoma (Actinomycetoma)

Other Species — We may mention *A minutissimus* found in *Erythrasma* and *A tenuis* found in trichomycosis

ORDER 2 THALLOSPORALES Vuillemin 1910

Reproduction by means of thallospores

Classification — This order may be divided as follows —

Reproduction by means of the form of thallospore called blastspore —

Suborder 1 *Blastosporineae* Vuillemin 1911

Reproduction by means of the form of thallospore called arthrospore —

Suborder 2 *Arthrosporineae* Vuillemin 1911

SUBORDER BLASTOSPORINEÆ Vuillemin 1910

The genera of medical importance are *Cryptococcus* Kutzing 1838 *Pityrosporum* Sabouraud 1895 *Candida* Berkhout 1935 *Geotrichoides* Langeron and Talice 1932 *Hormodendrum* Bonorden 1851 *Cladosporium* Link 1816 *Malassezia* Baillon 1889

Genus *Cryptococcus* Kutzing 1833 (*Torulopsis* Berlese 1894 em Ciferri 1925)

Only budding cells present no mycelium

Principal species — *Cryptococcus neoformans* (Sanfelice) causes *European Blastomycosis* (Busse Buske disease)

GENUS *PENICILLIUM* Link 1809

Absence of roundish or ovaloid expansion The conidiophore ramifies into verticellate branches supporting sterigmata each of which abstricts a chain of conidia (basipetal formation) The whole of the fruit body resembles a hairbrush hence the name penicillium

CLASS IV *FUNGI IMPERFECTI* (*Adelomycetes*)

The fungi of this class reproduce as far as we know only by asexual spores Many of them are of great medical interest

The class contains two orders —

Mycelium very thin 1 micron or less — Order 1 Microsiphonales

Mycelium larger than 1 micron
- reproduction by thallospores — Order 2 Thallosporales
- reproduction by hemispores — Order 3 Hemisporales
- reproduction by conidia — Order 4 Conidiosporales

ORDER I MICROSIPHONALES Vuillemin 1912

For simplicity we admit only one family *Actinomycetaceae* with one genus *Actinomyces* Harz 1877 with the general characters of the Order and with 2 subgenera *Actinomyces* anaerobic and *Nocardia* aerobic

GENUS ACTINOMYCES SUBGENUS ACTINOMYCES

Anaerobic only one species *A Israeli* Kruse 1896 which is the cause of the classical actinomycosis with sulphur yellow or white yellowish grains

GENUS GEOTRICHUM Link 1809

h Only arthrospores no blastospores

GENUS TRICHOSPORUM Behrend 1890

Similar to Geotrichum but parasitic on hair
Principal species — *T giganteum* (Behrend 1890)
Causes white piedra

GENUS MADURELLA Brumpt 1905

Cultures of black colour (causes a black variety of mycetoma)

GENUS INDIELLA E Brumpt 1906

Causes a variety of white mycetoma Not cultivated

ORDER III HEMISPORALES Vuillem 1910

Fungi imperfecti reproducing by hemispores Only one genus *Hemispora* Vuillemin 1906 with only one species *Hemispora stellata* Vuillemin 1906

ORDER IV CONIDIOSPORALES Vuillemin 1910

Fungi imperfecti reproducing by conidia Principal genera *Acladium* Link 1809 *Aleurisma* Link 1809 *Glenospora* Berkley and Curtis 1876 *Sporotrichum* Link 1809 *Scopulariopsis* Bainier 1907 *Monosporium* Bonorden 1851

Acladium Link 1809 — Conidia (aleuroconidia) pleurogenous being found only on the sides of the hyphae not apical usually sessile never in clusters

GENUS PITYROSPORUM Sabouraud 1904

Budding cells of very small dimensions no mycelium
Principal species — *Pityro porum ovale* Bizozzero 1882

GENUS CANDIDA Berkhout 1935 Em Langeron and Guerra 1928

Buddings cells and pseudomycelium present

GENUS GEOTRICHOIDES Langeron and Talice 1932

Blastospores arthrospores pseudomycelium true mycelium present

Principal species — *G cutaneus* de Beurmann Gougerot and Vaucher 1909

GENUS CLADOSPORIUM Link 1816

Cultures black blastospores conidia present mycelium present Formation of chains by apical budding

Important species — *Cladosporium pedrosoi (= Hormodendrum pedrosoi) Cladosporium mansoni* (Castellani) Pinoy The first is the causer of Chromoblastomycosis the second of Acladiosis

GENUS MALASSEZIA Baillon 1889

Not cultivated many free spores arranged in grape like clusters
Type species — *Malassezia furfur* (Ch Robin 1852)

SUBORDER ARTHROSPORINEÆ Vuillemin 1911

Thallosporales reproducing by arthrospores

culide of the skin After Gilchrist and Stoke s case other cases of blastomycosis due to an identical or similar organism were described by Hyde Oppenheim Ricketts and many others Ricketts considered these fungi to be species of *Oidium* and proposed the name *oidiomy cosis* to indicate the disease produced by them They cause North American blastomycosis (Gilchrist s Diseases)

C dermatitidis in the affected tissues has the appearance of a typical yeast — i e large globular cells 10 to 16 μ in diameter well marked double contour some budding In cultures at room tempera ture which are at first usually white besides these globular elements mycelial tubes develop presenting lateral or terminal conidia asci are absent The fungus does not gas ferment sugars and there is no for mation of a pellicle in liquid media

BLASTOMYCES (PARACOCCIDIOIDES) BRASILIENSIS

(Splendo e 1912)

Synonyms — *Oidium brasiliense* Splendore 1912 *Zymonema brasiliensis* Splendore 1912 *Zymonema histoporocellularis* Haber feld 1912 *Mycoderma brasiliensis* Brumpt 1922 *Coccidioides bra siliensis* de Almeida 1929 *Monilia brasiliensis* Vuillemin 1931 Coccidioides esferiformes Moore 1932 *Coccidioides histoporocellu laris* Fonseca 1932

Remarks — This fungus was first seen by A Lut in 1908 It was cultivated and fully described by Splendores in 1912 who called it *Zymonema brasiliensis* It is the causative agent of the oropharyn geal type of blastomycosis occurring in South America

Description — In the tissues the fungus appears with the cha racters given in the definition of the genus Large globular bodies are seen up to 30 40 in diameter wich may be Gram positive or Gram negative surrounded by small coccoid bodies about 1 μ in diameter wich are strongly Gram positive The large globular bodies were con sidered to bo asci budding out spores about the periphery until the dense protoplasm is used up Somewhat yeast like roundish bodies 5 10 in diameter at times larger at times smaller with a well marked

Aleurisma Link 1899 — Conidia (aleuroconidia) — acro pleurogenous Those on sides of hyphae usually not pedicellate but attenuated at points of insertion Terminal clusters present

Species of medical interest *Aleurisma albiscicans* (Nieuwenhuis 1907), *Aleurisma castellanii* Pinoy 1916 *Aleurisma orientale* Castellani & Iacono 1934

Sporotrichum Link 1809 — Conidia (radulospores) on sides of hyphae pedicellate and when they become detached the supporting *pedicelli remain Terminal and lateral clusters present*

Monosporium Bonorden 1851 — Each sporofore bears one single conidium at its apex

Important *species* — *M apiospermum Saccardo causes a variety* of mycetoma

Glenospora Berkley & Curtis 1876 — Conidia acro pleurogenous some in chains (basipetal formation) *Species of medical interest* *G graphii* Siebenmann 1889 *G khartoumensis* Chalmers and Archibald 1916 *G lanuginosa* Cast 1930

Scopulariopsis Bainier 1907 Resembles Penicillium Conidia borne on phialides chains basipetal Species of medical interest *S blochi* Matruchot 1911

INCERTÆ SEDIS

Some of the fungi of importance *in tropical medicine are of very* difficult classification and have to be described under the heading *Incertæ sedis*

I will touch very briefly upon the following Blastomyces dermatitidis Gilchrist & Stokes *Blastomyces (Paracoccidioides) braziliensis* (Splendore) *Histoplasma capsulatum Piedraia Hortai*

BLASTOMYCES DERMATITIDIS Gilchrist and Stokes 1898

Synonyms — *Cryptococcus gilchristi* Vuillemin *Zymonema gilchristi* de Beurmann and Gougerot

Found by Gilchrist and Stokes in a case of chronic ulcerative dermatitis and later in a case which had been diagnosed as a tuber

culide of the skin After Gilchrist and Stoke s case other cases of blastomycosis due to an identical or similar organism were described by Hyde Oppenheim Ricketts and many others Ricketts considered these fungi to be species of *Oidium* and proposed the name *oidiomycosis* to indicate the disease produced by them They cause North American blastomycosis (Gilchrist s Disease)

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double contour may also be present in the pus and tissues occasionally showing typical budding Cultivation is rather difficult The best medium to grow the fungus from the lesions is ordinary agar (pH 7 4) The growth is often cerebriform yellowish somewhat resembling Achorion schoenleini On this medium the organism develops in the form of round yeast like cells only but on glucose agar *mycelium develops with typical conidia* The cultures on maltose and glucose agar are greyish white and some cottony like aerial mycelium may be present at times None of the ordinary carbohydrates is acidified or gas permented

Pathogenicity — Pathogenic to guinea pigs by intratesticular injection but only local lesions develop The fungus injected in these animals intraperitoneally does not cause any lesion It will be remembered that *Coccidioides immitis* inoculated intraperitoneally on the other hand produces a generalized infection which kills the animal White mice are infected with great difficulty

HISTOPLASMA CAPSULATUM Darling 1906

Synonyms — *Cryptococus capsulatus* Castellani and Chalmers 1918 *Grubyella capsulata* Ota 1928 *Torulopsis capsulata* Almeida 1933 *Pesadasia capsulata* Moore 1934

Remarks — This organism was discovered by Darling in 1906 at the autopsy of a patient who had been suffering from febrile splenomegaly clinically resembling kala azar The organism was present in the endothelial cells of capillaries and small bloodvessels in the spleen liver intestine lungs and lymph glands as well as in the leucocytes Darling and many other observers after him considered it to be a protozoon Darling creating for it the genus *Histoplasma* *It was first cultivated by* W A De Monbreun

Description — In the affected tissues the organism is present in the shape of intracellular roundish or oval bodies measuring 1-4 μ in diameter and enclosed in an achromatic refractile capsule A few bodies generally in the spleen may be extracellular and may be

budding The parasite is found principally in the large endothelial cells of the spleen lymphatic glands lungs liver and intestine It is present in large numbers in the form of small oval or roundish bodies which on superficial examination have some resemblance to Leishmania but do not show any blepharoplast and possess a well defined capsule and moreover some parasites are budding They are usually 2 or 3 occasionally 4 μ in length 1 5 2 μ or a little more in breadth The cromatine in the cytoplasm is arranged irregularly There are also parasites which are extracellular and are then larger and are surrounded by a clear area or halo which probably represents a colourle s mucinoid capsule possibly this halo may not be a definite capsule produced by the organism but a reaction product of the surrounding tissue

In cultures the organism is found under two forms a crypto coccus like form when grown on blood and serum media at 37 C and subcultured very frequently a filamentou form on other media In the filamentous type the hyphae are septate multinucleate 1 5 μ in diameter Racquet mycelium may be present Lateral conidia are often seen spherical or pyriform sessile or pedicellate 2 8 μ in maximum diameter Chlamydospores may be present 3 10 μ in diameter singly or in chains intercalary or lateral eldom terminal Asci were des cribed and therefore the fungus wa at one time placed among the Ascomycetes

PIEDRAIA HORTAI (Brumpt 1913)

Synonyms — *Trichosporum hortai* Brumpt 1931 ? *T paragua nyum* Delamare and Gatti 1928 ? *Piedraia sarmentoi* Pereira 1930

The fungus forms hard black nodules on hair (Black piedra) The microscopical examination of the nodule after treating with liquor potassae shows presence of a large number of septate mycelial filaments and segments of filaments close together and presence of ovoid asci each containing four or eight elongated ascospores On Sabouraud s maltose agar colonies are dark brown very adherent later becoming folded and eight to ten weeks after inoculation the colour of the whole growth is quite black Mycelial hyphae are septate 8 12 μ in diameter slightly brownish thick walled Asci are seen with difficulty asco pores elongated fusiform 30×10 μ slightly

curved of a greenish yellow colour each pole of the ascospore has a filiform appendage about 30 μ long but may be much shorter

Medical men interested in mycology should read and study some books dedicated only or principally to that science among which the following excellent ones Langeron and Vanbreuseghem Précis de Mycologie Paris 1952 Brumpt Precis de Parasitologie Paris 1947 Conant Martin Smith Baker and Calloway Clinical Mycology Philadelphia 1954

My old monograph on Fungi and Fungous Diseases Amer Med Ass Chicago 1927 may still occasionally be found useful

CRYPTOCOCCOSIS EPIDERMICA

(Blastomycosis epidermica)

Synonym — Saccharomycosis epidermica

History and Geographic Distribution — Many years ago while in Ceylon I noticed on the skin of one of my bungalow servants



Scraping from a case of cryptococcosis epidermica fusca
Note cryptococcoid bodies (*Cryptococcus vel Torulopsis epidermidis*)

several brownish dirty looking patches which looked very much like dirt He told me however that they did not disappear when soap was used I made a scraping and saw the patches consisted of a large number of budding cells which I believed to be saccharomyces

I found the same patches not only in other natives but also in Europeans especially on the chest and arms and called the condition «saccharomycosis epidermica» which term I changed later into «cryptococcosis epidermica» I did not succeed in growing the fungus Chalmers and others have confirmed my observations in the Sudan and North Africa and fairly recently Amalfitano in Italy but the organism has not yet been cultivated Amalfitano s paper is an excellent one (La cryptococcosi epidermica di Castellani Giorn Italiano di Dermatologia 1942 fasc No 1)



Cryptococcos s ep dermica

A short general account of the condition may be found in Castellani and Chalmers Manual of Tropical Medicine London 1919 pag 2092

Etiology — The causal organism is *Cryptococcus vel Torulopsis epidermidis* Castellani 1914 It appears in the lesions under the form of large (5 7 microns in diameter and more) roundish or ovaloid cells occasionally budding which have so far not been cultivated

Symptomatology — The condition is fairly frequent in natives and Europeans who have resided for many years in the tropics It is characteri ed by the presence on the arms and more rarely on the

chest and neck of small roundish dirty yellow occasionally golden yellow or brownish patches which can generally be removed by thorough scraping These patches consist of large numbers of blasto myces like elements of various sizes rounded or oval which have so far not been cultivated

Treatment — Ordinary soap does not remove the patches but thorough scraping with sand soap and hot water is generally sufficient to remove them In obstinate cases salicylic acid alcoholic lotions (2 4 %) and a salicylic sulphur ointment are useful

Cryptococcosis Epidermica Alba and Rosea — White patches consisting solely of yeast like fungi without inflammatory signs are occasionally seen especially in natives I have several times grown the fungi which belong to the genera *Candida Torulopsis Saccharomyces* In a case with pinkish patches a *Torulopsis (Cryptococcus)* was present which when cultivated on laboratory media gave rise to pink colonies

PARONICHIA ACTINOMYCETICA VEL NOCARDIACA

As well known there are four common types of paronychia 1) due to the ordinary pyococci chiefly *Micrococcus pyogenes* var *aureus* and var *albus paronychia pyogenica* vel *septica* 2) due to trichophyton fungi *paronichia trichophytica* 3) due to yeast like fungi usually of the genus *Candida* (*Monilia* sensu medico) generally *C albicans* var *pinoyi* and *C albicans* var *metalondinensis* occasionally *C tropicalis paronichia moniliaca* 4) due to fungi of the genus *Mucor* and allied genera very less frequent than the previous ones but fairly common in California especially among fruit handlers — *paronichia mucorinica* The mucor found in the Californian cases is *Mucor paronychius* Sutherland Campbell & Plunhett 1934 probably a variety et *M racemosus*

A fifth type may now be added due to fungi of the genus *Actinomyces* subgenus *Nocardia* (aerobic) *paronichia actinomycetica* vel *nocardiaca* of which I have investigated two cases The condition is

clinically identical with paronichia moniliaca (paronichia candidiaca) the nail fold being swollen painful and tender In one of the cases a few transverse blackish lines were seen on the nail plate From both cases a fungus was isolated very thin (about one micron) non motile branching Gram positive Ziehl negative not liquefying gelatine within two weeks developing well on glucose agar on which it produces a slightly knobbly growth with a chalk white powdery surface later the submerged portion of the growth darkens and the medium also may darken The fungus gives off a musty odour the same as is so often noticeable in many wood and the same as given off by several other aerobic actinomyces fungi and especially by *Actinomyces ilicodoriferus*

Quite recently I had a case of mixed infection the *Actinomyces* fungus described above + *Candida albicans* var *pinoyi*

The course of the affection appears to be extremely long lasting for several years

Actinomyces ilicodoriferus Cast 1933 — Isolated first from a dermatosis resembling erythrasma but more pruriginous affecting the axillary region of a coloured woman in New Orleans Cultures on agar and glucose agar [illegible] sinking odour comparable to that of [illegible] wood Gram positive not acid fast Gelatine and serum very slowly liquefied Litmus milk decoloured not clotted or digested Does not produce acidity or gas in any of the carbohydrates and other carbon compounds tested — viz glucose laevulose maltose dulcitol rhamnose arabinose inositol amygdalin salicin sorbitol raffinose dextrine erythritol xylose adonitol Possibly variety or strain of *A album* Rossi Doria 1891

Treatment — I recommend the methods of treatment I use as a routine in paronichia moniliaca If the patient does not object to the reddish discolouration simply advise him to place the tips of the affected fingers in the so called Castellani s tincture ten minutes in the morning and ten minutes at night If the patient objects to the discolouration the following treatment may be used the affected fingers should be soaked for ten minutes morning and evening in a bowl of tepid water to which 1 3 teaspoonfuls are added of a powder consisting of methyl salicylate grm 0 60 acidum boricum grm 30 alumen grm 30 At night after this procedure an ointment is applied regularly with the following formula ichthyol grm 1 boric acid grm 2 vaseline grm 30 A light bandage may be applied

INTERTRICO MONILIACA
(INTERTRICO BLASTOMYCETICA)

Synonyms — Intertrigo saccharomycetica intertrigo cryptococcica intertrigo endomycetica intertrigo candidiaca intertrigo mycetica

Intertrigo blastomycetica was first described by me in Ceylon in 1907 an account of it may be found in all the editions of Castellani & Chalmers *Manual of Tropical Medicine* (p *2092*) In Europeans the affected skin — usually the skin of the inguinal regions — is reddened and there may be a slight exudation and the surface may take a sodden appearance the border of the eruption may be fairly well marked but it is not distinctly raised In coloured patients the patches may appear whitish when the fungi are present in enormous amount as is often the case In many cases there is not much itching In a case in scrapings I found a true yeast which I called in 1907 *Saccharomyces samboni* In the great majority of cases organisms are found of the genus *Candida (Monilia)*

The simplest treatment is the application of the fuchsin paint Good results can be obtained also by using a 2 per cent gentian violet paint

TINEA NIGRA

Tinea nigra is characterized by the presence of jet black patches caused by a fungus of the genus *Cladosporium* which I called *C mansoni* in honour of Sir Patrick Manson A detailed description of it may be found in Castellani and Chalmers Manual of Tropical Medicine 2nd edit 1913 It often affects the palms of the hands The fungus is fairly easily grown on sugar media giving rise to black colonies Europeans may contract this mycosis as well as natives

A European medical man went to Burma from Ceylon in 1911 for a pleasure trip On returning to Ceylon he noticed a roundish slightly elevated black spot on the palm of his left hand The spot slowly increased in size for two months becoming the size of a halfpenny piece A single application of formaldehyde made it disappear but three months later it reappeared The second application of formaldehyde made it disappear permanently Cultures were made from

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The fungus grows well though less abundantly on the other sugar agars and also on ordinary agar In broth and peptone water the growth is very slow and takes place at the bottom of the tubes with formation of a black or greenish black sediment Gelatine is at times very slowly liquefied

The microscopical examination of cultures shows presence according to Pollacci and Nannizzi of some olivaceous hyphae very little branching terminating in rows of roundish arthrospores 2 5 micron in diameter

The optimum temperature for the growth of the fungus is between 30 and 32 C above 35 C and *under 25 C the growth is much slower and may be nil* under 20 C

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TINEA NODULARIS

This is not a common condition but I have seen three cases of it The usual lesions of tinea rings and plaques are absent On the legs exceptionally on the body several most pruriginous nodules the size of a large pea to a small cherry *are seen*

The surface of the nodule may be granulomatous and covered by crusts If repeated examinations are carried out trichophyton like fungi are found

The local application twice a day of the fuchsin paint is the best treatment



Tinea nodularis

FURUNCULOSIS CRYPTOCOCCICA (FURUNCULOSIS BLASTOMYCETICA FOLLICULTIS DECALVANS CRYPTOCOCCICA)

Some years ago I described a peculiar type of mycosis indistinguishable clinically from the ordinary furunculosis which I called at the time «furunculosis cryptococcica» and as the condition in the first two cases principally affected the scalp under the form of a purulent folliculitis and loss of hair I suggested for it also the term «folliculitis decalvans cryptococcica»

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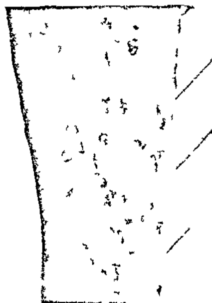
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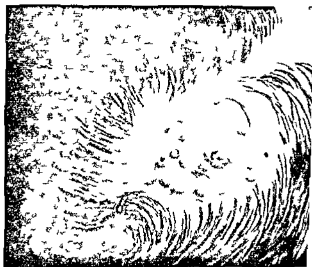
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Etiology — The fungi found are yeast like and it is difficult to decide whether they belong to the genus *Torulopsis (Cryptococcus)* or the genus *Candida (Monilia)* One of them *(Candida vel Torulopsis vel Cryptococcus castellanii* Re*)* has been fairly completely investigated Its cultures on glucose agar are pinkish It produces a slight amount of gas in glucose levulose and mannose

By some authorities it has been identified with *Torulopsis pulcherima* a common yeast like organism found on flowers and in soil and its pathogenicity has been doubted



Furunculosis and folliculitis cryptococcica

The fact that the fungus may be a common saprophyte of flowers and fruit does not exclude the possibility of its being pathogenic to man It is sufficient to remember *Torulopsis neoformans* a soprophyte of fruits which gives a deadly disease in man the blastomycosis of Busse Buske The strains of fungus isolated from the Indian cases are somewhat different from the organism grown from the English cases and differ also though slightly among themselves

Symptomatology — The clinical picture of this blastomycosis is totally different from the usual types of blastomycosis cutis which

are characteri ed by the presence of patches with vegetating papillary excrescences which give them a characteristic verrucose or frambesi form appearance Furunculosi blastomycetica is clinically indistin guishable from ordinary severe furuncolsis Boils indistinguishable from ordinary boils may be present on the face and body but the region mostly affected as a rule i the scalp In this region numerous pustules flattened or conical each pierced by a hair may be seen in addition there may be infiltrated lesions which somewhat resemble flat carbuncles and later open and discharge through several openings

The hair in the affected areas falls off and patches of baldness sometines permanent remain

Paronichia due to the same fungus may be present

ILLUSTRATIVE CASE

Mr D mar ed ged 34 a Dan who h d sid d n London for t elve years preceed ng adm ss on was fond of all outdoo po ts nd was a famou fo tball player The cond tion had started a few ye s p sly to h s being seen by me w th the appearan e of foll ula pustul on th scalp a d two o three furunculous l s on on the forehead nd fac

Later ext emely pa nful arbun le l k l ons d veloped A bacteriolog al examination of the pus was mad t well known l nic l l bor tory in London and *Staphylococc i au cu* a found An utogenous st phylococc s vaccin and also a stock vaccine were g e fo ghte n m th without any ben f t On the adv c of h s medical attend nt tl p t ent th n am to cons lt m

Apart from boil on th l ft fo e rm d one on the supra orb tal reg on ll the lesions were on th lp r l p t he of baldn ss th the sk n smooth and wh t sh were pl inly sibl th re re also nu ier s foll ul r pustules ome fl t ome con cal and most of th m ur nd d by a one of hype em T o extremely pa nful ca b ncle l k l n one not y t op n d and the other with veral op n ngs d ch rg ng we pr sent I mad k ct iologic l and mycolo gical e am nat on M c o op lly th pu ont n d o ly Gr m po t ve cocci The de tro e agar t bes ino ul ted th the p s lowed bund nt growth of *St ply lococcu* and microscop cally h re nd the a yeast l ke cell in sever l t bes Afte plating and replat ng the y t l k o g ni m wa ol t d with g e t d ff ulty Later I g ew the same fungus f om a number of les ons some of wh ch w e unope ed It wa a *To l ps* (*C yptococcu*) or a *Cand da* (*M l a*) with th f llow ng p ncipal ch acte s cultures on d xt ose agar we e bund nt with a smooth su f ce at f rst white nd lat r yellowish and l ter yellowi h p nkish The fungu d d not produce any g s n any c rbohyd ate at f st l ter it c used pro du t on of gas in d xtrose and levulo It w s agglut n t d by the p t ent s blood in high d lution (1 in 400) An interesting po nt ari s whi h org ni m was the

true causative agent of the condition the cryptococcus or the staphylococcus? In my opinion it was the cryptococcus for the following reasons staphylococcus vaccines did not have any beneficial action whatever The cryptococcus was agglutinated by the patient s blood and the condition *improved and finally disappeared* on a treatment consisting of massive doses of potassium iodide given internally It is well known that potassium iodide not only does not have any beneficial action on *Staphylococcus furunculosis* but also makes it much worse

Diagnosis — The diagnosis can be made only by mycological methods In all cases of persistent furunculosis that do not answer to staphylococcus vaccine sulphonamides and antibiotica the possibility of furunculosis blastomycetica should be kept in mind

Prognosis — The disease does not have a tendency to spontaneous cure

Treatment — Potassium iodide in very large doses (4 8 grms daily) given for long periods often induces a cure A vaccine prepared with the fungus seems to be useful but alone is not sufficient to bring about a cure

TINEA TENUIS

This is a rare condition The patient — all my cases were women — complains of severe pruritus usually on the dorsum of the *hands and forearms*

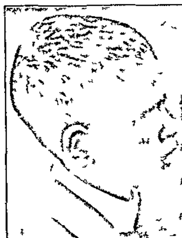
On casual superficial inspection one sees nothing but on close examination one notes the presence of one or several roundish or oval *hardly visible patches* composed of many minute papules From theses cases a fungus was isolated characterized by its thin mycelium I called it *Trichophyton tenuishypha* It is possible however that the fungus is not a trichophyton I still have cultures of this fungus and will be pleased to send them to any colleague interested in the subject A description of it was given in the Journal of Tropical Medicine and Hygiene December 15 1939

The best treatment is the application of the fuchsin paint Tincture Iodi also gives good results

TINEA DECALVANS PERSTANS
(La — Li — Tou)

Synonym — La — li — tou pro parte

Years ago in Ceylon I described a peculiar trichophytic disease of the scalp that causes permanent baldness The scalp presents one



Tinea decalvans perstans (Ceylon case)

or several white patches covered with an enormous number of heaped up white pityriasic scales After a time the scales disappear and smooth bald patches remain permanently A certain amount of scarring may be present but in my experience never so marked as in favus

The scales and broken hairs examined microscopically show the presence of a trichophyton which when cultivated closely resembles *Trichophyton violaceum* of Bodin

I called it *T violaceum* variety *decalvans* as the patches remain permanently bald The condition is common also in China as shown

by Ota (Br Journ Derm & Syph Vol xxxiv 1922 Castellani & Chalmers Manual of Tropical Medicine 1919)

The traveller in Southern China is often surprised at the number of natives affected with baldness Baldness has been studied by Chinese medical men for centuries In the famous Chinese medical book «Bin — yuan — lu» (605 609 A D) three types of alopoecia are discussed the white alopoecia the red alopoecia and the demon like alopoecia (perhaps alopoecia areata)

At present the Chinese use the term la — li — tou to indicate baldness in general but principally the types of parasitic origin Ota has found that this term covers favus and tinea decalvans He believes that at least biologically *T violaceum* variety *decalvans* differs from the typical *T violaceum*

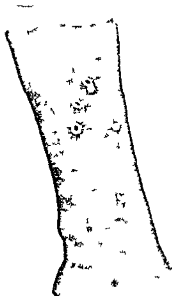
It must be stated however that in recent years it has been found by me in Ethiopia and in Morrocco by Langeron *that appa* rently also typical strains of *T violaceum* produce at times permanent *cicatricial alopecia* In addition Langeron has found also in North Africa that *T violaceum* may produce favus like scutula (Precis de Mycologie Paris 1945 p 537)

TINEA INTERSECTA

This dermatomycosis and its fungus were first described by me in 1907 A fairly complete account of it with a coloured plate may be found in Castellani & Chalmers Manual of Tropical Medicine all editions (London 1910 1913 1919) It occurs in Ceylon and Sou thern India

Etiology — If a portion of one of the brown patches or a scale be removed and treated with liquor potassae the fungus is easily detected The fungus (*Endodermophyton castellanii* Perry 1907) grows *between the superficial and the deep strata of the* epidermis It is present on the inner surface of the scales but not on the external surface A very remarkable fact is the extreme rarity of free arthrospores in fact in several cases one does not succeed in finding any The mycelium is fairly abundant though far from being so abundant as in tinea imbricata It is composed of long straight

articulated threads which are sometimes dichotomous the breadth being between 3 and 3 ½ microns Each segment presents in fresh preparations two refractile bodies one at each extremity No aspergillar fructifications nor clusters of spores are seen Attempts at growing the fungus have succeeded only in one case the growth being somewhat similar to that of *Endermophyton indicum* Castellani



Tinea intersecta (Ceylon case)

which causes a variety of Tinea Imbricata (see Castellani & Chalmers Manual of Tropical Medicine 1919 pag 2069)

Symptomatology — The eruption begins with small oval or roundish very slightly elevated itching patches generally situated on the arms legs chest and back The margins of these dark spots are at first slightly elevated and dotted often with minute dark papules The patches are dark brown in colour much darker than

the surrounding skin and present a smooth tense surface at first they increase in size slowly and some soalesce After a certain time the surface of the patches is no longer tense it becomes somewhat shrivelled and dry superficial cracks appear in it so that white lines are visible intersecting the brown surface Later the cracks become deeper the epidermis splits and several flaky curled up scales whitish inside and dark on the outer surface are seen the scales are often removed by friction and whitish roundish patches only remain The eruption never develops in concentric rings like tinea imbricata the patches remains isolated or fuse together forming irregular larger patches Some patches may disappear spontaneously after a time The general health of the patient does not seem to be affected In some patients there is a slight degree of eosinophilia

Diagnosis — When the eruption is in the very first stage it might be mistaken for a form of pityriasis versicolor In pityriasis versicolor however the epidermis does not split moreover in tinea intersecta the fungus is not found on the surface it grows between the superficial and deep layers of the epidermis Tinea imbricata begins in a manner somewhat similar to tinea intersecta dark brownish patches being present and the fungus in both eruptions growing between the superficial and deep layers of the epidermis In contrast to tinea imbricata however the eruption of tinea intersecta never develops in concentric rings is far less severe as patches may heal spontaneously and it is cured without much difficulty

Treatment — Tincture of iodine and the usual antiseptic ointments such as chrisarobin (2 to 5 per cent) answer well

TINEA ALBIGENA
(«KHI»)

This mycosis was described by Nieuwenhuis in Java It is fairly common in the Malay Archipelago and is occasionally met with in Ceylon where I carried out some researches on it It may be considered a variety of *«Hong Kong foot»* or *Tinea pedis* of the hyperkeratotic type

Etiology — The affection is due to a fungus which Nieuwenhuis believed to be a trichophyton *(T albiscicans)* According to Langeron and other authorities it is in reality an *Aleurisma* The growth on Sabouraud s media is very slow the colonies are whitish and show a powdery surface

Symptomatology — The eruption generally affects the palms of the hands and the soles of the feet It begins with the appearance



Tinea albigena (Ceylon case)

of small pruriginous spots on the palms and soles the epidermis becomes raised and bullae develop containing at first clear serum the bullae break and the skin remains dry and peels off the parts remain tender and there is a desquamation and pruritus A process of diffuse keratosis develops the palms and soles becoming double their usual thickness deep fissures may be formed at the natural folds Several horny semi detached discs can often be seen at the dilated orifices of the sweat glands The affection is very chronic it may begin in youth or in adult life After some time a process of depigmentation of the skin sets in white patches leukodermalike developing and extending often to the legs and arms

Treatment — Tincture of iodine and chysarobin ointment (1 to 5 per cent) answer fairly well but the apigmented patches are not cured

TRICHOMYCOSIS AXILLARES FLAVA RUBRA AND NIGRA

Remarks — Trichomycosis axillaris has been imperfectly known for years under the term lepothrix but the various clinical types were not differentiated and nothing definite was known of the aetiology the disease being ascribed to the most diverse germs In 1910 1911 while in Ceylon I studied the condition and separated three principal varieties of the disease the *yellow variety* the *black* variety and the red variety

Synonyms — Lepothrix (pro parte) trichomycosis palmellina (pro parte) trichonocardiasis axillaris trichomycosis nodosa trichomycosis chromatica chromotrichomycosis Castellani s trichomycosis

History — Paxton in 1869 described a nodular condition of the *hair of the axillary regions which was later named lepothrix by Wilson* Paxton s work was confirmed by Patterson and Pick who called the condition trichomycosis palmellina Payne Sonnenberg Babes and Barthelemey carried out investigations on the aetiology of the condition and described various bacteria including *Bacillus prodigiosus (Serratia marcescens)* as causative agents Eisner considered it to be caused by a diplococcus In 1910 to 1911 I described three varieties *of the* condition the *yellow variety* due to a fungus which I called *Actinomyces (Nocardia) tenuis (Discomyces Streptothrix Conistreptothix tenuis)* the *black variety* due to the same fungus plus a black pigment producing coccus which I called *Micrococcus nigrescens* and the *red variety* due to the same fungus plus a red pigment producing coccus *to which later Chalmers* and O Farrell *gave the name M castellanii* These two authors called the condition trichonocardiasis Macfie thoroughly investigated the condition in West Africa and described a subvariety which he called trichomycosis fusca

Geographic Distribution — The yellow variety is common in all climates The red variety is encountered much more frequently in the tropical than in temperate climates The black variety is estremely rare in the temperate one and may be said to be found only in the tropics

Etiology and Pathology — My researches have shown that in the yellow variety a minute fungus is constantly present in enormous numbers (*Actinomyces tenuis* Castellani 1911 synonyms *Streptothrix Discomyces Cohnistreptothrix tenuis* Castellani) In the black variety a black pigment producing coccus is found *Micrococcus nigrescens* Castellani 1911 living in symbiosis with it In the red variety a red pigment coccus first ob erved and grown by me is present living in symbiosis with the actinomyces This coccus later was called *Micrococcus (Rhodococcus) castellanii* by Chalmers and O Farrell who made a thorough investigation of the disease in the Sudan in 1913

Microscopical examination of the affected hair with low power shows that the haft is covered at several places by roundish formations which partially or totally encircle it Under a high power a cleared specimen being used these formations will be seen to consist in the yellow variety of enormous numbers of the bacillary like hyphae of *Actinomyces (Nocardia) tenuis* embedded in an amorphous cementing substance In the red and black varieties in addition to the masses of bacillary like bodies which are the mycelial segments of *A tenuis* large groups of coccus like bodies are observed *M nigrescens* in the black variety and *M castellanii* in the red variety

Actinomyces ten is Castellani 1912

Synonyms — *Discomyces ten s Streptothrix ten s Cohn treptothr x tenu* Castellani 1912

The microscopical exam nat on of th nodule in cleared spec mens reveals the presence of enormous numbers of rod l ke bod es — the bacilliform hyph e of an *Actinomyces (Noca d a)* — wh ch a e G am po itive b t not cid fast. If the nod les are kept in al ohol o formald hyde for se er l months th fungus ppa ently loses partially or totally its p operty of be ng sta nable by Gram method The bacillary bodies vary in length from 2 to 3 microns and more the a e age breadth is approximately from 0 1 to 0.3 microns they may be straight or slightly bent. and seldom.

Treatment — Tincture of iodine and chysarobin ointment (1 to 5 per cent) answer fairly well but the apigmented patches are not cured

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Actinomyces tenuis Castellan 1912

Synonyms — *Discomyces tenuis Streptothrix tenuis Cohnistreptothrix tenuis* Castellani 1912

The microscopical examination of the nodule in cleared specimens reveals the presence of enormous numbers of rod like bodies — the bacilliform hyphae of an *Actinomyces (Nocardia)* — which are Gram positive but not cid fast If the nodules are kept in alcohol or formaldehyde for se er l months the fungus apparently loses partially or totally its property of being stainable by Gram s method The bacillary bodies vary in length from 2 to 3 microns and more the average breadth is approximately from 0 1 to 0.3 microns they may be straight or slightly bent and seldom

if ever branching they are packed fairly close together and are embedded in a *cementing substance apparently secreted by the fungus* This ground substance is fixed to the cortex of the hair and a portion of it lies under the cuticle and some of the superficial layers of the cortex In regard to cultivation Chalmers and O Farrell observed some slight growth in hanging drops of equal parts of human serum and physiologic sodium chloride solution The fungus grew showing bran ching forms and coccal forms The branching was monopodial and the hyphae were non septate Macfie in one case succeeded in cultivating the fungus on ascitic sugar agar the colonies being small and *translucente Porcelli also cultivated it*

Micrococcus (Nigrococcus) nigrescens Castellani 1911

Micrococcus nigrescens is a Gram positive rather large non motile coccus which in certain media may take the appearance of a cocco-bacillus It produces a black pigment Sugar mediums are more suitable for the growth of the organism *than the ordinary agar*

Sabouraud Maltose Agar — Colonies appear from twenty four to forty eight hours after inoculation They are roundish and at first white but after a couple of days the centre of each colony turns black and the pigmentation slowly spreads eccentrically After a time the colonies may coalesce into a jet black mass

Dextrose Agar — Growth similar to Sabouraud but slightly less abundant The black pigmentation develops from the centre of the colonies and slowly spreads towards the periphery

Levulose Agar — Identical to dextrose

Saccharine Agar — The pigmentation is less pronounced and does not spread to the whole of the growth

Raffinose Agar — Same as saccharine

Lactose Agar — Scanty pigmentation

Alkaline Maltose Agar — Black pigmentation well marked though in many cases it does not extend to the whole growth

Acid Maltose Agar — Growth less abundant than on alkaline maltose Black pigmentation well marked

Mannitol Agar — As alkaline maltose

Inulin — As alkaline maltose but pigmentation less pronounced

Saccharose — As inulin agar

Glycerine Agar — Abundant growth the whole of which after a time becomes jet black.

Galactose — As inulin

Adonitol — As acid maltose

Ordinary Agar — Growth much less abundant than on most sugar agars, and black pigmentation less marked

Serum — Growth fairly abundant *but there is only a trace of pigmentation* The medium is not liquefied

Gelatine — No liquefaction The growth on the surface shows after a time some dark pigmentation but the growth along the stab is white

M lk — No change

B oth. — General turbid ty A th n pell cle is often present M croscopical examination shows cocci arranged in pa rs or irregularly They do not appear to be cap ulated

Peptone W ater — Some growth at the bottom wh le the rest of the tube is clear

Sugar B oth — No formation of acid or gas

Indol — Most stra ns produce a trace of indol

Micrococcus (Rhodococcus) castellanii Chalmers and O Farrell 1913

I isolated th s coccus in 1910 in Ceylon from the red variety and later it was furth r investigated in the Sud n and named by Chalmers and O Farrell *M c ococcus cast llani* It is more difficult to isolate and to grow than the coccus observed in the bla k type of the d sease It is interesting to note that as a rule th s organ sm grows better and shows more p gment on ordinary agar than on sugar mediums The coccus s round or oval me suring f om about 0 3 to 0 7 microns in diameter It is separ ted med anly by a clear central line into two half moon shaped segments this producing a d plococcal appearance It is colourless and non motile but excrete an amorphous non g anular lemon chrome pigment. In old cultures anothe pigment of dark brownish red appears (accord ng to Ridgway s standa ds this colour s madd r brown) but its relat onship to the earlier p gment can easily be proved as d monstrat d by Chalmers and O Farrell by removing and suspend ng some of it in a suff c ency of distilled water when the fluid at once resembles a s milar suspension of th yellow p gment. When however this is done in a small quantity of water a faint reddish t nge can be observed The best medium for showing the striking yellow pigment is the potato on wh ch in twentyfour hours the growth assumes th t colou The red pigment shows best in the o dinary agar slopes which when old exhibit the da k red pigment in the centre and the y llow pigment at the sides The organism is eas ly stained by all the ord n ry stai ng reagents and is Gram positive Howe er even in p eparations showing most of the cocci w ll coloured by Gram s method a few cocci may be seen d colour ed The organism does not appear to have a caps le

The coccus grows aerobically and also anaerobi ally The optim m tempe rature appears to be 37 C it also grows at 20 C on ag r slopes but not as abundantly as at 37 C and the pigment tion is much less marked The rat of growth depends somewhat on the med um it grows qu ckest on potato and ne t best on o dinary or glyce ine ag On solid med um there is a yellow g owth at f rst but on most mediums, if kept long enough some red colourat on will ubseq ently be found The best med um for the red colou at o as alr ady stated. appea s to be the ag r slope With regard to the other ag mediums the coccus grows well on dextrose and m ltose ag r Like *M n gr sce s* it produces neither acid nor gas in dextrose le ulose galactose arabino e sac h rose raff nose

dextrine inuline amygdaline erythrite adonite dulcite isodulcite mannite sorbitol or inositol It grows slowly on blood serum which it does not liquefy and well in broth and peptone water in which it forms a general turbidity gelatine is not liquefied It does not produce indol

In agar stabs the growth is confined to the line of puncture and to the formation of a yellow knob on the surface

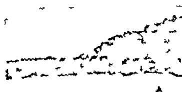
Classification of Micrococcus Castellanii — Chalmers and O Farrel have thoroughly investigated this point

The organism belongs to the family *Coccaceae* (Zopf emended Migula) and must be grouped with the genus *Micrococcus* (Hallier 1866 emended Cohn 1872) In this genus it certainly belongs to those forms which grow well on agar mediums and are Gram positive and in this division it belongs to the subdivision which produces colours

The cocci of this subdivision which posess red colouration are only three in number — *M roseus* (Baum 1885) *M ruber* (Trommsdorff 1904) and *M rubidus* (Hefferan) Under the term *M roseus* (Baum emended Lehmann and Neumann) are gathered a large number of rose coloured diplococci which are not known to be parasitic and which produce growths on potato which are limited to the streaks These growths are faint rose colour with an oily lustre and are often surrounded by a whitish glistening zone thus giving rise to a very different appearance from that produced by *M Castellanii* *M ruber* (Trommsdorff 1904) or as it is sometimes named *M chromidogenes ruber* is characterized by the fact that it does not grow on potato its colouring matter is not soluble in water and when treated by sulphuric acid the red matter turns blue green while *M Castellanii* does grow on potato and its colouring matter is unaffected by 25 per cent sulphuric acid *M ruber* appears to be closely related to *M roseus* var *carneus* and to be non parasitic

Pathology — From my own observations and those of Chalmers and O Farrel it would appear that when the actinomyces fungus first attacks the hair it grows and pushes its way under a cuticular scale and then works its way into the cortex raising in so doing its superficial fibers which together with the cuticular scale form a covering or protection for the fungus which probably finds its nutriment in the cortex The fungus does not penetrate deeply into the cortex but grows outward *forming the caracteristic nodules* This method of growth explains why the hair is so little affected the deeper layers of the cortex the medulla and the root of the hair are not involved though the hair at times loses its lustre In an early stage of the infection the cuticle and some fibres of the cortex may be seen to be raised in ridges which run in wavy lines across the shaft of the hair transversely to its long axis masses of the fungus

may be seen growing under these ridg
of the rod like hyphae of actinomyc





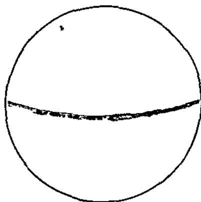


The three varieties of trichomycosis (

genous ground substance In the us
actinomyces masses are surrounded



Symptomatology — *Trichmycosis flava* The affected hairs of the axilla and pubes present nodular formations of a yellow and occasionally yellow greyish colour plainly visible to the naked eye of rather soft consistency in the tropics and capable of being removed easily by scraping with a triangular needle or any similar instrument The nodules are much harder and generally of much smaller si e in temperate zones so much so that I at one time considerad that there were two distinct clinical varieties of *Trichomycosis flava* the tropical variety characterized by the nodules being large soft and easily removed and the European variety or *lepothrix sensu stricto* cha



Trichomycosis nigra

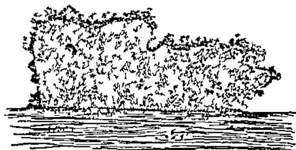
racterized by the nodules being hard small and difficult to remove Microscopic examination of the cleared specimens shows the formations to consist solely of enormous numbers of bacillary like bodies — the rod like hyphae of *Actinomyces (Nocardia) tenuis* embedded into an amorphous cementing substance Trichomycosis flava affects the hairs of the axillary regions and more rarely those of the pubes The affected hairs may occasionally become lusterless and somewhat depigmented

Trichomycosis nigra The nodules are generally of the same si e and consistency as those in trichomycosis flava but are black Microscopic examination shows masses of rod like elements *(Actinomyces tenuis)* and masses of black pigment producing cocci *M nigrescens*

T nigra appears to affect only the axillary hairs as I have never encountered Trichomycosis nigra of the pubic hairs

Trichomycosis rubra The nodules are red but the red pigmentation is of varied intensity and Macfie has described a subvariety of less vivid colour than usual which he has called *Trichomycosis fusca* Microscopic examination shows the nodules to consist of large masses of actinomyces elements *(Actinomyces tenuis)* surrounded by masses of a coccus *(Micrococcus castellanii)* Trichomycosis rubra may affect both the axillary and the pubic hairs

Mixed types — It is not at all rare in the tropics to find patients affected with two varieties of *trichomycosis* the hairs of one armpit



Nodule of trichomycosis nigra Note bacillus like hyphae of *Actinomyces tenuis* and black masses of *Micrococcus (Nigrococcus) nigrescens*

may show the yellow variety while the hairs of the other armpit may present the black type or the red type At times the same individual hair may present some yellow and black or red nodules I have not yet observed all three varieties present at the same time on the same patient

Methods of infection — The usual method of infection appears to be from man to man This is strongly supported by the following observation made by Chalmers and O Farrell in the Sudan

This observation tends to show that the incubation period is about two weeks this being the length of time necessary before the infection produces sufficient growth on the hairs to attract attention

A young European known to be quite unaffected with trichomycosis became greatly interested in the work carried out on the condition at Khartoum He examined cases which came to the laboratory and handled and examined fresh hairs removed from the axillae When he visited the laboratory he was clad in tennis attire and as he moved about his shirt rucked up from below repeatedly and whenever this occurred he adjusted it by pulling forward his leather belt with one hand while he pushed the soft shirt downwards inside his trousers with the other Two weeks after examining cases he first noticed a reddish appearance on the hairs of the pubes On examination it was found that the hairs were infected with the red variety of trichomycosis — that is to say with the variety which he saw and handled in abundance It grew rapidly on the pubic hairs but did not extend to the axillae

Complications — In acute cases in which the infection is heavy an erythematous condition of the axillae may be observed *Hyperidrosis* is common but so far I have come across only one case of *chromidrosis* associated with *trichomycosis* In certain cases I have noticed a yellowish discolouration of the skin of the axilla and in one more completely investigated case an actinomyces fungus similar or identical with *Actinomyces (Nocardia) tenuis* was found in the patches

Diagnosis — The diagnosis is easy being based on the presence of yellow nodules *(trichomycosis flava)* red nodules *(trichomycosis rubra)* and black nodules *(trichomycosis nigra)* on the hairs of the axillae and pubes

Differential Diagnosis — The various types of *trichomycosis* have to be differentiated from Cheadle and Morris tinea nodosa (known also as Beigel s trichosporis) Behrend s nodular trichosporis (Behrend s trichosporosis) Piedra Unna s piedra nostras (Unna s trichosporosis) and finally Du Bois trichosporosis The differentiation is easy as in none of the above conditions are fungi found of the actinomyces type viz bacillus like and not thicker than one micron

Prognosis — None of the varieties of trichomycosis axillaris has a tendency to spontaneous cure while the patients reside in a hot tropical country In a patient going to a cold climate the condition may subside or even disappear completely *Trichomycosis nigra* seems to disappear in a cold climate much more rapidly than *trichomycosis flava* or *trichomycosis rubra*

Trichomycosis axillaris is a disease of not much importance but before the habit of shaving the axillae became general European women in the tropics at times were greatly distressed by it as when they wore low necked dresses the disfiguring red or black patches in the axillary regions were visible It is a curious fact also that when natives are affected with trichomycosis they seem to regard it with disgust and readily seek treatment Chalmers and O Farrell have brought forward the hypothesis that the general custom of shaving the axillary hair among certain native tribes may have originated in their profound dislike of this complaint

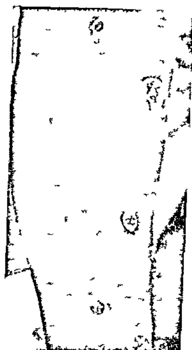
Treatment — The treatment originally used by me in Ceylon is generally efficacious The affected hairs are dabbed twice daily with an alcoholic or aqueous solution of formaldehyde (½ 2 %) at night a 2 to 5 per cent sulphur ointment is rubbed in To allay the irritation of the skin caused by this treatment calamine lotion may be applied Resorcin and salicylic alcohol solutions have also been used but as a rule they are not so efficacious Tincture of iodine alone is practically without effect but it is useful in obstinate cases after a few days of the formaldehyde sulphur treatment Chrysaro bin ointment is messy and does not induce any striking improvement The application of ether chloroform or creosote occasionally causes an improvement but the skin is often irritated Dabbing the parts with a strong solution of lysol (10 20 %) is at times efficacious An alcohilic solution of B Naphtol (1 2 %) is also frequently successful especially if combined with B naphtol ointment (3 %) This treatment however may at times cause a rather severe irritation

ACLADIOSIS

This disease was described by me in 1906 (British Medical Jour nal Oct 7) Cases have been observed in Ceylon the Federated Malay States and Macedonia It has also been reported from Siam by Mendelson and from Bra il by O da Fonseca and A E da Area Leao (1927) A ca e was observed by me in Somaliland in 1936 and one quite recently in a patient coming from Angola

Etiology — The condition is caused by a fungus which I isolated in Ceylon Cultures were sent to Professor Pinoy at the Pasteur Institute who made a complete investigation of it and called it *Acladium castellanii*

The fungus grows well on ordinary laboratory media such as glucose agar potato carrot The growth on glucose agar consists



Acladiosis typical ulcers

usually of many small roundish masses which later on coalesce covered by spiculated formations giving them a prickly appearance These spicules on microscopical examination consist of straight erect filaments parallel to each other or at times interlacing Each mycelial filament is about 2 microns in breadth and carries laterally conidia — using the term *sensu lato* — of variable shape usually piriform or spherical attenuated in at their points of insertion The dimensions of the conidia are on an average 4 microns in length and 3 microns

in breadth This type of fructification recalls the type of Acladium fructification described by Bodin in certain species of the genus Trichophyton (Malmsten) These conidia become detached and mycelial filaments develop from them At times chlamydospores are fairly frequently terminal the dimensions being variable — 8 to 10 microns Fructifications of the type *Aleurisma* (apical clusters) are also constantly present and for this reason Langeron has placed the fungus in this genus In recent years the fungus has been placed in several different genera by different authors Butler has placed it in the genus Sporotrichum (Rhinocladium) but according to Langeron this is a mistake as in the genus *Sporotrichum (Rhinocladium)* the spores are radulo spores and when they become detached so many short pedicelli remain on the hypha while in the fungus found by me the spores are not radulo spores and are arranged as in the genus *Aleurisma* and genus *Acladium*

Histopathology — The three principal types of lesion may be distinguished

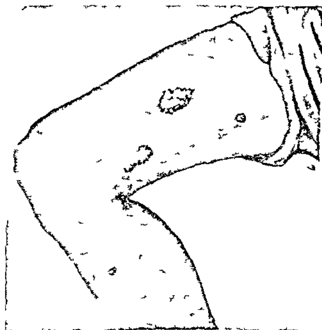
1) The polymorphonuclear or ecthematous type being an infiltration of the tissues consisting principally of polymorphonuclear leucocytes

2) The epithelioid or tuberculoid type in which there is a marked cellular infiltration consisting chiefly of round cells epithelioid cells and giant cells

3) The lympho connective tissue or syphiloid type characterized by a round cell and plasma cell infiltration with proliferation of the endothelial cells of the intima

Symptomatology — In a well marked case ulcerative lesions are present all over the body but less numerous or absent altogether on the face scalp palms of the hands and soles of the feet The ulcers are sharply defined roundish or oval with a fundus studded with rather prominent red granulations They secrete an abundant purulent fluid which dries up in thick yellow crusts in such a way that in some cases no ulcerative lesions are seen but only yellow crusty rupioid lesions which *may be easily mistaken for yaws nodules* In addition to the ulcerative lesions gumma like swellings may be

peared within two or three days The intradermic injection of the other fungus produced much more evident and deeper lesions which ulcerated and later became covered with yellow crusts and did not disappear before two or three month These lesions so produced had a close resemblance to those seen in the patient although a generalized eruption did not develop We believe therefore that the *Asper*



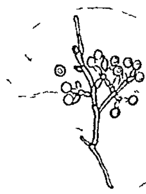
Paracladiosis from a coloured sketch

gillus had nothing to do with the aetiology of the malady while the other fungus is probably the aetiological agent of it

Description of the Fungus — The fungus grows well on ordinary media and on glucose agar the growth often resembling that of *Acladium* vel *Aleurisma castellanii* being yellowish or brownish and often showing spicules on the surface After two weeks but sometimes much longer the microscopical examination often shows presence of

conidial fructifications identical or very similar to those seen in hanging drop cultures

Hanging Drop Cultures — In hanging drop cultures (peptone water or glucose broths 2 per cent) a large amount of mycelium is found the mycelial hyphae remaining isolated or at times collected in sheaves The mycelium is septate ramified and there is often anastomosis between various hyphae Each hypha varies in breadth between 2 5 and 3 8 microns The protoplasm of the hypha is usually



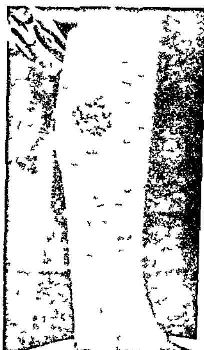
Aleurisma orientale From a hanging drop culture

hyaline occasionally granular and may contain fatty droplets Intercalary chlamydosopores may be present About the fifth or sixth day or later some mycelial hyphae become differentiated from the others they are much thicker and the membrane may take a brownish colour they are conidiophores The fructifications appear as small bunches of pedunculated conidia (aleuroconidia) which are roundish hyaline sometimes of a greenish or brownish colour 3 to 4 microns in diameter These fructifications are somewhat similar to those found in the genus *Aleurisma*

Physiological Characters — The organism slowly liquefies gelatine and peptonizes milk In certain sugar media it may produce acidity

but this does not appear to be constant it does not liquefy coagulated serum at least not within the first two weeks

Classification — Cultures were sent to the well known mycologist Professor Curzi who came to the conclusion that the fungus



Paracladiosis trichophytic like patch

was an ascomycete and belonged to the genus *Ascrothrica chartarum* Berkely 1838 Langeron however has not confirmed Curzi s results and has placed the fungus in the genus *Aleurisma* The correct terminology would apparently be *Aleurisma orientale* (Castellani and Jacono 1934) Langeron 1938

Pathology — The principal type of lesion is granulomatous There is a cellular infiltration of the corium consisting of round cells

and epithelioid cells and some giant cells are present Evidence of acanthosis may be noted in the epidermis

Experimental pathology — The intracutaneous injection of the fungus into white mice guinea pigs and rabbits does not produce any definite lesion Peritoneal injection produces small nodules of a greyish white colour situated on the surface of the spleen liver and in the omentum The nodules consist of masses of the fungus and a large number of leucocytes Intrapulmonary inoculation causes small abscesses and granulomatous lesions

Symptomatology — In our case the eruption when seen by us had been present according to the patient for more than three years The whole body but principally the lower and upper limbs presented large rupioid crusty lesions of a yellow colour 2 to 4 cm in diameter several of them — the less recent ones — surrounded by a one of hyperpigmentation These lesions were very scanty on the scalp and absent on the face palms of the hands and soles of the feet The crusts were very thick on removing them usually *no true ulcerations* were seen the surface had more the appearance of what one sees in a case of psoriasis when the masses of scales have been removed a slight punctiform bleeding surface without ulceration At times however true ulcerative lesions were present but were always shallow oval or roundish with a maximum diameter of 2 to 4 cm with rather well marked granulations but no special characteristic features

A few furuncle like lesions were al o present and a very few gumma like swellings

From time to time here and there a few small papules the si e of a pinhead red and pruriginous appeared on healthy parts of the skin These quickly became papulo-vesicles and later pu tules coales cing into a cru ty ma s and a uperficial ulcerative process at times developed

The patient complained of intense pruritus The lymphatic glands of the inguinal and axillary regions were somewhat enlarged and ha d A few lesions spontaneously disappeared leaving behind hyper pigmented patches

Cutireaction — From cultures on glucose agar fifteen days old thick emulsions were made in saline These emulsions after eight days were filtered through Berkenfeld N candles With the filtrate cuti reactions were carried out in the patient in healthy areas of the skin they were also carried out in other individuals suffering from various diseases and in normal individuals In the Chinese patient a very marked reaction took place a red infiltrated patch developed some hours after the inoculation In all other individuals no reaction was noted or only a very slight one

Prognosis — Apparently the disease has no tendency to spon taneous cure although a few lesions may disappear spontaneously leaving behind a hyperpigmentation

Diagnosis — This is based on the presence of numerous very pruriginous lesions with thick yellow rupioid crusts in which the *Aleurisma orientale* is found

The disease must be differentiated from syphilis yaws acladiosis and trichophytosis and favus The disease differs from syphilis in the intense pruritus and in the blood being negative for Wassermann from acladiosis in the absence of definite fairly deep round or oval ulcers with prominent granulations when the crusts have been remo ved from the ordinary types of ringworm by the absence of eruptions developing in rings and by the presence of thick yellow rupioid crusts from favus by the crusty lesions being rupioid and not cup like and by the fungus being totally different from favus fungi

It is interesting to note that our patient had been diagnosed as a case of syphilis by well known specialists The authorities of the Missionary School were naturally very upset at this diagnosis

Treatment — Potassium iodide had not much effect The treat ment we found most efficacious was the application twice a day of the so called Castellani s Fuchsin Paint the formula of which is as fol lows Saturated alcoholic solution of basic fuchsin 10 cc 5 per cent aqueous carbolic acid solution 100 cc filter and add boric acid 1 grm after 2 hours add 5 cc of acetone and 2 hours later 10 grm of resorcine

It is advisable to discontinue the treatment from time to time when a soothing ointment may be applied for two or three days such as bismuth carb grm 0 30 vaseline or cold cream grm 30

TRICHOASPERGILLOSIS AND TRICHOPENICILLIOSIS

The affected hairs — generally of the beard and moustache occasionally of the axilla — present dirty greyish or whitish puncti form formations which on microscopical examination are seen to consist of penicillar or aspergillar fungi *(Penicillium barbae A pergillus barbae)* Occasionally both types of fungi are found on the same patient The affection is very chronic The diagnosis is easy the characteristic aspergillus and penicillium fructifications distinguishing this conditon from other parasitic nodular infections The simplest method of treatment is by shaving and afterwards using regularly a medicated soap such as carbolic soap tar soap or sulphur soap

If the patient does not wish to shave his beard turpentine may be tried

In natives who do not bathe frequently such as old persons and beggars the skin presents often large dark patches due to accumulated dirt in which aspergillar or penicillar fungi are often present living saprophytically This condition has nothing to do with a true mycosis as a thorough scrubbing with soap will remove the dirt and the aspergillar and penicillar fungi which may be present

MYCOTIC PRURITUS ANI

Some years ago I described as a separate entity «Pruritus ani of mycotic origin» My publications which appeared mostly in the Journal of Trop Med & Hygiene during the years 1924 30 attracted little attention at the time but in recent years the importance of this type of pruritus ani has been recognised

These are two chief aetiological varieties the variety due to *Trichophyton* fungi and the variety due to *Candida* vel *Monilia* fungi Cases of mixed infection occur

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These are two chief aetiological varieties the variety due to *Trichophyton* fungi and the variety due to *Candida* vel *Monilia* fungi Cases of mixed infection occur

Clinical Symptoms — The patient complains of severe pruritus in the ano perianal region not as a rule continuously but at intervals The pruritus is often worse at night but the attacks of unbearable itching may come at any time Inspection of the anal perianal region *in recent cases may reveal nothing at all except perhaps signs* of scratching but in most cases on careful examination minute red slightly raised infiltrated patches may be seen in the perianal region occasionally arranged in two curved lines In a number of old cases signs of an eczematous dermatitis due to scratching are present and



Mycotic pruritus ani chronic eczematoid form

streptococcus and other secondary bacterial infections may become engrafted on the mycotic condition

When the secondary bacterial infection becomes abundant especially if many coli and proteus germs are present the fungus may disappear completely or become extremely rare In some old standing cases the skin is thickened and lichenified

Etiology — *Trichophyton like fungi* In a certain number of cases trichophyton like fungi are present although examination may have to be repeated very many times before getting a positive result

Yeast like fungi — In a number of cases of pruritus ani I found fungi of the genus *Candida* and rarely other yeast like organisms

(Saccharomyces Debaromyces Torulopsis etc) either alone or together with trichophyton like fungi

Mycetid — Occasionally no fungi are found and the condition seems to be of the nature of a mycetid due to some distant focus of fungal infection as for instance tinea interdigitalis

Bacteria — Bacteria are always present but as a rule they are econdary invaders and not the true causative agents of the pruritu

Diagnosis — A definite diagnosis of the trichophytic variety of mycotic pruritus ani cannot be made without trichophyton like fungi being found microscopically or by cultural methods a diagnosis of probability can be made however on clinical grounds the minute red infiltrated patches fairly often seen on careful examination in the ano perianal region being suggestive especially if the patient is suffering from mycotic dermatitis of the toes or gives a history of having suffered from dhobie itch or tinea cruris in the past When the bacterial flora is abundant it may be extremely difficult or impossi ble to isolate the fungi

A diagnosis of *Candida (Monilia)* pruritus ani (monilial pruritus ani) should be made only when trichophyton like fungi on repeated examinations are absent while candidae are present in very large numbers Cases of mixed infection occur

Course and Prognosis — The course of the condition is chronic but periods of great improvement and apparent cure may alternate with periods of severe recrudescence Attention should be called to certain cases fortunately rare in which although the eruption under appropriate treatment has completely disappeared the pruritus con tinues This is observed in highly strung nervous persons Difficult cases are also encountered in patients suffering from or having ten dency to true eczema when they become infected with epidermophy ton or trichophyton like or monilial fungi either the irritation caused by the fungi themselves or that set up by the treatment to eradicate *the condition may precipitate an attack of eczema not only in the* ano perianal region but also in many other regions of the body

Persistence of Pruritus ofter apparent Disappearance of the Fungal Infection — In previous publications I have called attention to the occurrence of cases fortunately rare in which after the antimycotic treatment all the objective symptoms of epidermophytosis or candidiasis disappear and the microscopical and cultural examinations are negative but the pruritus remains for many weeks and months The pruritus may be of different origin

(a) The clinical signs have disappeared but the mycotic infection is still present although in such small amount that the cultural and microscopical examination may be negative or some distant mycotic focus (toes) may be present (mycetid) (b) overtreatment and mild acquired hypersensitivity to the various antimycotic ointments (c) nervous origin in some highly strung individuals the *pruritus remains* long after the infection has disappeared

Treatment — In my experience by far the simplest and most efficacious treatment is the application twice a day of Castellani s fuchsin paint *both around and inside the anus Should the patient refuse* the treatment tar and salicylic ointments are useful Deek s ointment gives good results It consists of salicylic acid 4 parts bismuth subnitrate 10 parts mercury salicylate 4 parts oil of eucalyptus 4 parts petrolatum and wool fat sufficient to make up 100 parts It is interesting to note that long ago Deeks found that this antimycotic ointment had a beneficial action in many cases of pruritus ani although the existence of the mycotic type of the condition was not known at the time

Another useful treatment is the following during the day apply several times a lotion consisting of Resorcine grm 4 alcohol purum grm 20 Glycerine grm 2 Aqueae dest at grm 200 At night apply the following ointment Ac salicyl grm 0 30 Beta Naftol grm 0 15 Ac carbolicum grm 0 30 Vasel grm 30

DERMATITIS INTERDIGITALIS PEDUM GEOTRICHICA (GEOTRICHUM MANGO TOE TINEA PEDUM GEOTRICHICA)

Dermatitis interdigitalis pedum — known popularly by many names among which in the East «Mango Toe» — is usually of trichophytic or epidermophytic origin or of *Candida (Monilia)* origin I have described a third variety that due to fungi of the genus *Geotrichum* (Journ of Trop Med & Hygiene March 15th 1940)



Tinea pedis geotrichica

Clinically it is not possible to differentiate this last variety from the other two and microscopical and cultural studies are necessary (vide infra) Cases of mixed infection geotrichosis and candidiasis (moniliasis) occur

The best treatment is by the application of the fuchsin paint twice daily for several days

It may not be out of place to say a few words on fungi of the genus *Geotrichum* often placed in my opinion wrongly among the so-called yeast like fungi the chief type of which is represented by the genus *Candida (Monilia)* sensu medico Genus *Geotrichum* Link 1809 — In the lesions and culture the fungi of this genus appear under the form of large mycelial filaments and articles and squares or rectangular arthrospores without free budding cells (blastospores) being present.

Arthrospores as well known are produced by a close septation of a mycelial hypha a fragmentation of the hypha takes place and the arthrospores become free Some of the freed arthrospores from a square shape may gradually take up a roundish shape and one of these roundish bodies may show at times a bud like protuberance *prolonged microscopical examination will show that the bud like protuberance* prolonged microscopical examination will show that the bud like bulge gradually gives rise to a filament not to another roundspore (blastospore)

Fungi of this genus produce no gas fermentation of sugars they may produce acidity

The chief species of the genus are the following

G candidum Link 1809 (= *G lactis* Fresenius 1850)

G rugosum Castellani 1910 (= *C rotundatum* Castellani 1911)

G asteroides Castellani 1914

G matalense Castellani 1915

Geotrichum candidum (= *G lactis* = *Oidium lactis*) is commonly found in milk The cultures on glucose agar are white or greyish

G rugosum Cast 1910 (= *Haemispora rugosa* Cast *1912* = *Geotrichum rotundatum* Cast 1912) Found in faeces and in sputum and in skin lesions Cultures on glucose agar amber colour or yellowish or brownish rugose or vermicular or cerebriform

G asteroides Cast 1914 — found in stools and sputum Cultures on glucose agar typically asteroid

G *matalense* Cast 1915 — Found in stools and in sewage Glucose agar cultures hairy fluffy white

Complete descriptions of above fungi may be found in Castellani & Chalmers Manual of Tropical Medicine p 1093

Yeast like fungi The practical clinical myologist often uses the term «yeast like fungi» or «budding fungi» or «blastomycetoid fungi» or «fermentoid fungi» *or «levuriform fungi» or even simply «yeasts»* as a collective term to denote fungi which reproduce solely or principally by budding and appear in the lesions under the shape of roundish or ovalo d cells some of them budding with complete absence or great scarcity of mycelium in cultures mycelium may be present although usually the free roundish or oval budding cells greatly predominate

Simple classification of yeast like fungi

Yeast like or Budding» Fungi — Mycelium	Present — Asci	Absent	*Torulopsis vel Cryptococcus* sensu lato
		Present	*Saccharomyces sensu lato*
	Absent — Asci	Absent.	*Candida (Monil a)* sensu lato
		Present	*Endomyces* sensu lato

Fungi of the genus *Candida* may be defined in a practical way as yeast-like fungi or budding fungi — never presenting asci — which in the les ons and in

cultures appear in the form of round sh or oval budd ng cells (4 7 microns in diameter) with a very l ttle amount of mycelium or more correctly pseudomycelium The princ pal spec es of the genus are the following *C albicans* (with four principal varieties *C albicans* var *candidans* *C alb cans* var *p noyi* *C albicans* var *metalondinens s* and *C albicans* var *stellatoidea*) *C krusei* *C tropicalis* *C pseudot op calis* *C guillermond* *C bronchialis* *C rho* *C macedon ens s* In *Candida macedoniens* accord ng to some a thors among whom H A Diddens and J Lodder a ci are present and by these authors t has been transferred from the genus *Cand da* to *Saccharomyces*

Serologically accord ng to the wo k done on the subjet some years ago by myself and Macken ie Dougl s it would appea that several serological groups may be d stingu shed The f st group contains *Ca d da albicans* and its varieties and also *C trop al s* the second group contains *C pseudotrop calis* the third grou p conta ns *Cand da macedon ens s* and its varieties and the fourth group contains *C k use* For the differentiation and cl ssification of the species of the genus *Cand da* many other laboratory methods have b en employed among which the carbohyd ate util zation test Castellani s absorpt on test the precipitin test the p ecipit n absorpt on test

Table of chief species of the Genus Candida

Sp f C dd	Gl se	L l	M	M l	G l ose	Sa h	La	I l	R m k
Candida zeylanoides Cast 1916	O	O	O	O	O	O	O	O	Smooth colonies white
krusei Cast 1909	G	G	G	O	O	O	O	O	Dry granular colonies white cells often ovaloid or elongated
krusei Cast var Castellanii Uden & Lopes 1953	G	G	G	O	O	O	O	O	Assimilates maltose lactose saccharose
parakrusei Cast 1912 vel krusoides 1937	G	G	G	O	O	O	O	O	Smooth colonies white cells usually roundish
* albicans Robin 1853 var stellatoidea Jones & Martin 1938	G	G	G	G	O	O	O	O	Smooth stellate colonies white
albicans Robin 1853 var pinoyi Cast 1910	G	G	G	G	O	O	O	O	Smooth colonies white
albicans Robin 1853 var metalondinensis Cast 1919	G	G	G	G	G	O	O	O	Smooth creamy colonies
tropicalis Cast 1909	G	G	G	G	G	G	O	O	Smooth colonies white Rarely rough strains are found which usually after a time become smooth
guillermondi Cast 1910	G	G	G	O	O	G	O	O	Smooth colonies white
bronchialis Cast 1910	G	G	G	G	O	G	O	O	Smooth colonies white
rhoi Cast 1909	G	G	G	O	G	G	O	O	Smooth colonies white
pseudotropicalis Cast 1910	G	G	G	O	G	G	O	G	Smooth colonies white
macedoniensis Cast 1917	G	G	G	O	G	G	O	G	Smooth colonies white

O = negative result viz absence of gas G = Gas

DERMATITIS GLUTEALIS FISTULOSA
(BLASTOMYCOSIS GLUTEALIS OF KARTULIS)

This condition was described by Kartulis at the end of the last century in Egypt I have seen several cases in Ceylon and the disease has been thoroughly investigated by Gohar in recent years in Egypt



Blastomycosis gluteal s (Ceylon case)

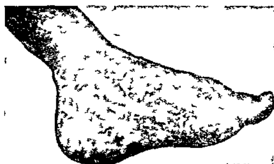
The gluteal regions one or both present a diffuse induration and the surface is cribrated with the openings of sinuses from which a thin pus exudes containing no grains The sinuses may be very deep and communicate with each other but generally do not communicate with the intestine

The fungi found are usually of the *Candida (Monilia)* type but occasionally no fungi of any kind are found only many diverse bacteria Maxwell in China has described a clinically similar condition which he thinks to be of amoebic origin (Jeffrey & Maxwell s Diseases of China 1929)

The *treatment is most unsatisfactory* but a combined treatment consisting of potassium iodide sulpha drugs and penicillin and other antibiotics may be tried

PARAMYCETOMA

This term has been used by Chalmers Archibald and myself to indicate a condition of the foot clinically undistinguishable from *madura foot but for the fact that there are no grains* The micros copical examination will often reveal presence of scanty thin mycelial



Pseudomycetoma of framboetic origin (Ceylon case)

filaments In my experience most of these cases are in reality cases of *agranular actinomycosis* and are due to various Nocardia fungi (aerobic Actinomyces fungi) For more details the reader is referred to Castellani & Chalmers Manual of Tropical Medicine 1919 pag 2145

PSEUDOMYCETOMA

This is a term introduced by myself (Castellani & Chalmers Manual of Tropical Medicine 1919 pag 2147) to indicate a condition of the foot clinically closely resembling *mycetoma* but in which no fungi and no grains are found It is known to the natives of New Guinea as *Roacki Buno* or *Auma*

It may be of various causation In the tropics it is usually of yaws origin being a late manifestation of the disease without other symptoms The foot is enlarged deformed and swollen and sinuses ulceration and discharge may be present In the temperate zone I have seen a case of tubercular origin

LUETIC PSEUDO CYSTICERCOSIS

This rare condition was described by me in 1937 (Journal of Tropical Medicine & Hygiene October Ist 1937) and further investigated with Acanfora in 1938 (same Journal July Ist 1938)

The patient gives a history of having noticed on palpation a number of small nodules under the skin in the arms and legs usually while drying himself after bathing His general condition of health may be good or he may complain of feeling tired and nervy and there may be slight fever at night He generally gets very worried over the presence of these nodules although they are not visible but only palpable and will seek medical advice The practitioner will find on palpation numerous small nodules usually the si e and shape of rice grains which give the impression of being embedded in the subcutaneous tissue They may be hard but not rarely have a slightly elastic feeling A few may be roundish They are not tender or only slightly so The skin is normal There is no pruritus The blood shows no eosinophilia The urine is normal

Of the three cases ob erved by me two had been diagnosed as cysticerco is and the third was diagnosed as possible cysticercosis and later as trichinosis in calcification stage but the X ray examination showed nothing abnormal In none of them was there history of syphili but the blood gave a strong Wassermann reaction in all The superficial lymphatic glands were not distinctly enlarged No rashes or history of rashes

ILLUSTRATIVE CASE

N B aged 24 Italian road labo rer H w s shown to me 1935 at a hospital in Ital n East Afr ca as an ob cu e case that m ght be cyst cercosis H s general cond t on of health w f ly good althougl some sl ght temperature was present at night 37.2 C to 38 C He v as very worr ed over the presence of

numerous nodules on *the arms and legs* — palpable not visible — which he had discovered some months previously when rubbing himself after bathing The examination of the chest and abdomen revealed nothing abnormal spleen and liver not palpable superficial lymphatic glands not enlarged In the *arms and legs* numerous small nodules most of them rather hard the si e and shape of grains of rice some with a sort of elastic f eling could be palpated They felt very much like the nodules found in partially cal ified cysticercosis Urine normal stools normal The blood showed some slight anemia of the hypochrom c type but no malaria parasites no eosinophilia Wassermann test strongly po itive (++++) He denied ever having had syphilis No scars on the penis No antiluetic treatment was given

A year later this patient was admitted to a hospital in Italy and a definite diagnosis of trichinosis was made Later he was admitted to the University Clin c of Tropical Diseases in Rome and a thorough investigation of the case was carried out under my supervision The appearan e of the patient was exactly the same as when I saw him in Africa his general condition of health being fairly satisfactory but he was extremely nervous and worried over the presence of the nodules which were not visible — they could only be found by palpation A sl ght temperature was presente occasionally in the evening but not so regular and persistent as in Africa X ray examination revealed nothing In the blood no eosinophilia was noted *Wassermann test repeat d three times as always strongly positive* (++++) A biopsy was carried out and the nodule was excised No sign of cysticercosis or trichinosis calcified or otherwise The nodules consisted of fibrous tissue

The patient was placed on an antiluetic treatment cons sting of neoarsphenamin and bismuth inje tions All the nodules disappeared within three weeks and the patient looked and felt qu te well

Pathology — The nodules although often giving the impression of being free in the subcutaneous tissue develop usually on and in the fasciae of the muscular masses of the limbs Microscopical examination shows that they consist of fibrous tissue Silver staining did not reveal any spirochaetes in my cases

Diagnosis — This is based on finding on palpation numerous small subcutaneous nodules usually the shape and si e of rice grains while the Wassermann test is positive and a specific antiluetic treatment cures the condition A biopsy will show no signs of cysticercosis or trichinosis

Prognosis — Excellent if the correct diagnosis is made

Treatment — Penicillin arsphenamin or neoarphenamin and bismuth should be given as in the usual forms of lues

ELEPHANTIASIS NOSTRAS
(BACTERIAL ELEPHANTIASIS NON FILARIAL ELEPHANTIASIS)

Non filarial elephantiasis is not a tropical disease so much so that another name for it is elephantiasis nostras but as it occurs also in the tropics and as very little is found about it in books it may not be out of place to discuss it here

The term elephantiasis is used in practice to denote any enlargement and deformation of a limb or other part of the body the consequence of the blocking of the lymphatics Many causes may induce the condition and therefore aetiologically there is not one elephantiasis there are several elephantiases

The following is a simple classification of the elephantiases

1 — Elephantiasis tropicalis (Elephantiasis filarica) believed to be due to *Filaria bancrofti (Wuchereria bancrofti)* and *F malayi (W malayi)*

2 — Elephantiasis nostras (Elephantiasis non filarica Elephantiasis bacterica) due to bacteria

3 — Elephantiasis symptomatica vel pseudoelephantiasis caused by various conditions of syphilitic framboetic tuberculous poro adenitic neoplastic post operative (removal of lymphatic gland) and other origin

4 — Elephantiasis congenita vel Morbus Meigen Milroy congenital

I will limit myself to discussing only Elephantiasis nostras

Elephantiasis nostras Symptomatology — The disease begins with an attack of lymphangitis usually of the leg with high fever and the patient may feel very ill there may be great prostration On the affected limb red erysipelas like patches are seen The condition may extend up or down the limb In some cases the redness is linear or in streaks The affected limb becomes oedematous and there may be pain and tenderness The inguinal glands are generally enlarged and painful Although after the first attack of lymphangitis the swelling may disappear and the limb may resume its normal si e this does not happen after repeated successive attacks and gradually

the limb becomes more and more swollen while the natural folds, especially the ankle fold becomes more exaggerated by the swelling on either side so that deep sulci are formed The dorsum of the foot



Case of incipient Elephantiasis nostras Appearance of leg after an erysepelatous like attack of fever These attacks recurred every two or three months

becomes swollen and puffy and is separated by the deep ankle sulcus from the swollen lower part of the leg

At first the skin is smooth and soft forming the smooth variety of the complaint — *elephantiasis nostras glabra* — which may in some cases persist indefinitely or the skin may later become hard thick

and rough being elevated into bosses or warty elevations often of a dark colour forming the verrucose variety — *elephantiasis nostras verrucosa* The appendages now atrophy from malnutrition the hairs may drop off and the nails become rough and thickened while the



Case of Elephantiasis nostrus
The patient was born in Great Britain and never left the country

skin perspires less and the sensibility may be diminished The swelling is more commonly met with below the knee but the whole thigh may become implicated

If left untreated the si e of the leg gradually increases with repeated attacks of fever and may reach enormous dimensions After some years the attacks of fever may cease altogether although the condition of the leg usually remains unchanged

Regions of the body affected — These seem to be the same as in filarial elephantiasis the most common situation being the lower limbs The scrotum is affected fairly frequently the upper limbs very seldom the face and lips occasionally When the disease affects the scrotum it begins usually with recurring erysipelatous attacks with a red inflammatory blush on the skin and fever After each attack the scrotum is larger than before and it goes on increasing until it reaches an enormous size It may be studded with numerous soft lymphatic vesicle like nodules If one of these is pricked quite a large amount of lymph may exude The penis itself is buried in the tumour The testicles are situated in the upper portion and back of the tumour and may be surrounded by hydroceles

Blood — There is often a slight degree of anemia often of the hypochromic type During the febrile attacks leucocytosis may be noted but there is no eosinophilia In the cases investigated chemically no abnormality was found

Urine — Nothing abnormal During the pyrexial attacks slight albuminuria may be present

X rays — As a rule no abnormality is found in the bones and no enlargement

Course — This is chronic and progressive and there is no tendency to spontaneous cure

Diagnosis — It is impossible to differentiate clinically between elephantiasis nostras and filarial elephantiasis as in both conditions there are repeated attacks of lymphangitis followed by temporary oedema then solid oedema and finally pachydermia with great hypertrophy of the skin and subcutaneous tissue

In elephantiasis nostras the blood never shows presence of microfilariae but this also occurs in many cases of filarial elephantiasis In elephantiasis nostras there is no eosinophilia but eosinophilia is far from being a constant feature in filarial lymphangitis and is absent in a number of cases of filarial elephantiasis



Case f El ph is Nos Th p ti w b l ly d w b d A P p sa f m th P ov nc f Aq l f ly O O ber 28 h 19 S wh l w k b h d ack of te p th left l g l gl d l f h gh Th w pt ly w ll g f h g nal gl d d b had fe er F m h d y th p d tha h l ft l mb beg t ge. h h leg th h h gh Afte som y ar h w ll g spre d h sc t m d th gh l g E y yea few m h j er l h h d k f f w h d hes h l g h gh d sc tum He at ed h U l si y Cli f T pi l D se ses R m ta J ary 1933 ad m d i fo mbe f y rs All l b t y i vest g ti for fila lal i fecti g O er l oc i dur g h py l ks *M crococcus mel ing eticous* w isol ed fr m h g nal lympha ic gl d I was lso fo d in h esicles f th scr m h l g cl se m l th es les w h b d fluid t phylococus as p ese G m pos st eptococ us nd som d ph er d ba illi

In practice the diagnosis of elephantiasis nostras is based chiefly on the knowledge that the patient contracted the disease in a country



Case of Elephantiasis nostras The patient was born in Great Britain and never left the country The left leg began to swell many years ago after an effort he made in lifting a piano which was followed by enlargement of the inguinal glands and fever Since then from time to time he had attacks of fever with red patches on the leg and thigh The swelling attained large dimensions He was treated in several different hospitals *and various operations were performed on him without any lasting benefit From this* case *Micrococcus metamyceticus* was isolated from the inguinal gland juice during an attack of lymphangitis (1930) All laboratory investigations for filarial infection were negative

where filaria is absent and also on the negative results of the sero logical and skin tests for filariae

Etiology — Many authorities believe elephantiasis nostras to be due to the ordinary Gram positive streptococci entering the lymphatics and the general circulation through small wounds or minute losses of substance such as the cracks between the toes in Tinea pedis It is probably true in some cases but in others the aetiological agent eems to be a much more delicate organism

During the last two decades I have investigated bacteriologically eighteen cases and in seven I have grown from the inguinal glands and unbroken soft lymphatic skin nodules a Gram negative coccus or cocco bacillus to which I gave the specific name *Metamyceticus*

M cr ccoccus (Coccob c llus) metamycet cus Cast 1933 (Jo rnal of Trop cal M d cine & Hyg ene(September 1933 and S ptember 1934) — This orga sm has been solat d by me f om the ng nal gl nds of cases of elephantias s nostras chiefly n Engl nd and Italy du ng the pyrexial attacks None of the pat ents had been n the t opics nd all l bo tory e min tio s for f lari were negative Fo some t me I cons de d the o g n m to be stra n o v riety of *M crococcus mycet cus* The f rst d scr ption of t as a s pa ate spec es was g en n 1933 and a more complet d script on was g en th following year (Jou nal of Trop cal Medic n & Hygiene Sept mber 1934) In the latte paper not only the aetiology but al o the pathology cl ni al aspects nd therapeut s of the d s s are discussed

Mo phol g al and Sta ng Chara t s — When f st solated this organism mo pholog cally is a Gr m negat ve co cus and the coccal cells are a ranged in twos or in irregula g o ps or in sho t chains but afte subc lturing esp c ally f trypsini ed ag s used prep at ons f equently show n add tion to the coccal form coccob c llary and bac ll ry fo ms lso G am n g tive in fact, wh n the organ sm has been transplanted ery many times on tryps n zed agar the bac llary forms may be qu te abundant ltho gh the cultures a e absol tely pure The org n sm s ms the efo to be pleomorph c and might be cons dered to be a *Coccoba c llus* The term Coccabac llus s not accepted in sc ntif c l terature as a term denoting a d f te genus but it is useful n pract ce as a so t of colloquial general t m to ind ate o gan sms wh ch may appear both as cocc and rod like orga sms With regard to G am stain ng it must b noted that very old st ains may at times become temporarily G am positive

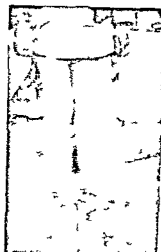
Agar — Th o g nism g ows very sc ntily or not at all on ord nary Italian plain agar or so-called poor agar (agar prepared with peptone wat nstead of b oth) but grows fa ly well on tryps n d agar

Glucos Agar — G owth scanty Some strains do n t grow on this medium

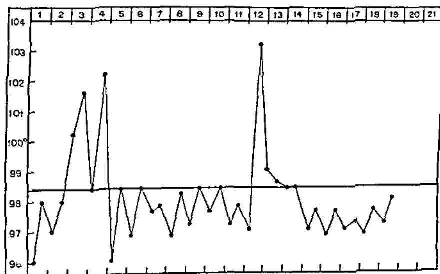
Coagulated S m — The o ganism usually grows fai ly well on this medium the colonies are small, delicate and may coalesce no l quefaction takes place

B ood Agar — Growth good Often haemolysis is noted

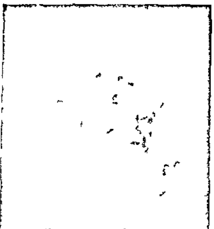
Gelatine — No liquefaction



Elephantiasis nostras Portuguese case Maria L Born in Portugal near Cascais never left the country The disease started over 20 years ago with attacks of fever and erysipelatous patches on the left leg All laboratory investigations for filarial infection were negative



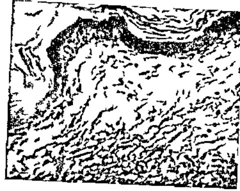
Temperature chart of a case of Elephantiasis nostras (Italian case) during attacks of lymphangitis



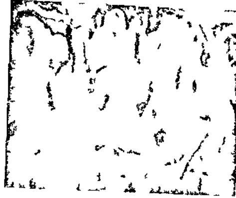
Micrococcus metamyceticus Stained preparation from serum culture 12 ho rs old Note presence of coccobacillary and bac llary forms × 750



I lephantiasis nostras Sect on of smooth skin × 240 Staining by We gert s iron haematox and Van G eson Note *flattening* of th n ep derm s with heaped up angular process Nuclei of *Ma p ghian layer close together no* prickles or inter cellular bridges Note hyaline layer below germ native layer



Elephantiasis nostras Weigert's iron haematox and Van Gieson High power view of corium of digital process Shows myxomatous nature of corium



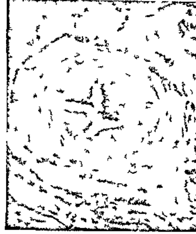
Elephantiasis nostras Italian case Section of skin Low power Note enormous fibrosis and perivascullar foci of cellular infiltration



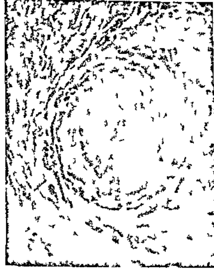
Plephartasis nostras *Section of sk n f om a case of ele* phantasis nostras glab a Magn f ati n × 56 Stain g by W gert s iron haemat and Van Gieson Stratum corneu n scaly Stratum sp nosum shows scantiness of cytopl sm with nuclei set close together C t s vera cons ts of intersect n bundles of connective t ssue separated by lymph channel No small celled infiltration is noted No flattening out of the interpap llary processes



Fleph ntiasis n stras Section of sk n from a case of Elephan t s nostras erru os Magn fication × 14 Staining by We gert s haemat and Va Gi son Note f nger l ke processes with hyperker to is and Malp ghian layer much thinned



Elephantiasis nostra Section of deep portion of true skin Magnification × 240 Staining by Weigert's haematox and Van Gieson Ateroma of arteriole The intima is especially thickened and the lumen of the vessel is stellate



Elephantiasis nostras Thrombosed vessel

Litmus Milk — The reaction is not changed or a very slight acidity may be present no clotting takes place

Biochemical Reactions — The organism ordinarily produces acidity never gas in glucose levulose mannitol inulin arabinose salicin raffinose dextrin xylose arbutin The biochemical reactions may vary slightly in different strains

Taxonomic Position — At one time I considered this organism to be a *Streptococcus* but its almost constant Gram negativity and the presence after some subculturing on trypsin agar of numerous coccobacillary and bacillary forms would appear to make this classification incorrect For the time being for convenience sake it might be continued to be known as *Micrococcus metamyceticus* until further investigation will render clear its taxonomic position

Pathogenicity — All the strains seem to be of very low virulence and pathogenicity for the ordinary laboratory animals (rabbits and guinea pigs) when inoculated subcutaneously intravenously and intraperitoneally In monkeys a recurrent type of fever may develop but no signs of elephantiasis have occurred

Pathology — The sequel of pathological changes is as follows (1) Acute inflammation of certain lymphatics and lymphatic glands occurs due most probably to bacterial invasion (2) Owing to the pathological changes produced in the lymphatics by the bacteria and their toxins oedema develops which later becomes solid oedema (3) The oedematous stage is followed by hyperplasia which affects the skin and subcutaneous tissues

The portal of entrance of the bacterium is usually an abrasion or small wound in the legs or feet but in some cases the portal of entrance cannot be detected and distant infective foci have been suggested

Morbid Anatomy — Very little is known with regard to the morbid anatomy of the disease apart from data collected at operation but it would appear that the lesions are very similar to those found in filarial elephantiasis the lymphatics being dilated and the inguinal glands of the affected side being often enlarged and there may be oedematous periadenitis In cutting into the skin of the affected limb it will be noted that the skin is greatly thickened and in the subcutaneous tissues there will be found dense fibrous trabeculae with spaces filled with yellow oily blubbery fatty substance which exudes lymph

Histopathology Epidermis — With regard to the epidermis the stratum corneum is hardly thickened in cases of elephantiasis nostras glabra while it is thickened in cases of elephantiasis nostras verrucosa The rete Malpighii layer is not usually thinned in elephantiasis nostras glabra but it is very greatly thinned in elephantiasis verrucosa In both types the nuclei of the cells of the Malpighian layer are usually very close together this showing great diminution or absence



Elephantiasis nostras English case X ray photograph of foot and lower portion of leg Bones not affected

of cyptoplasm in the cells the prickles in many cases are not seen In the verrucose type finger like outgrowing processes are noted covered by a loose thickened horny layer

Derma and Subcutaneous Tissue — These are greatly thickened and here and there small accumulations of small round cells are at times seen especially in the papillary layer The open lymph spaces are usually very prominent and very numerous the arterioles are greatly thickened the intima showing special hypertrophy there is seldom thrombosis The connective tissue in some cases is very loose and looks oedematous in parts the cells are branched as seen in mucoid degeneration

In brief the principal histological features of the skin in elephantiasis nostras are (1) Great thickening of the dermal and subcutaneous tissues (2) close approximation of the nuclei of the Malpighian layer and great diminution or absence of crytoplasm with almost total absence of the prickles (3) large numbers of



X ray photograph of case of Elephantiasis nostras
Bones not affected

prominent open lymph spaces (4) thickened arterioles (5) fibrosis These features are practically identical with those found in filarial elephantiasis

Prognosis — The prognosis always tends to be favourable *quoad vitam* but when the disease has fully established itself and reached

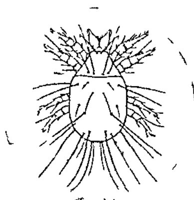
the pachidermic stage it may be considered incurable although life is not endangered

Treatment — During the acute pyrexial attacks of lymphangitis sulphonamides and antibiotics may be tried although the results are not brilliant and in my experience never dramatic Chloromycin seems to be the most useful antibiotic one capsule (grm 0 25) every three hours Penicillin has been worthless in my cases Neither the sulpho namides nor the antibiotics including chloromycetin seem to be capable of preventing recurrences of the febrile attacks For this purpose in several cases I have found of advantage the administration of *M metamyceticus* vaccine but it must be given regularly once or twice a week for many months and even years When the pachidermic stage has developed the recurring fever attacks generally cease spontaneously but neither sulphonamides nor antibiotics nor vaccines have any influence on it Surgical operations — many have been devised — give very unsatisfactory results except in elephantiasis of the scrotum In practice the method of treatment I have found of some real usefulness although merely palliative is that which I intro duced for tropical elephantiasis many years ago in Ceylon The patient is placed at complete rest in bed and the affected leg is kept somewhat raised by means of cushions and is bandaged with crepe bandages taking care that the maximum of the pressure should be on the foot and instep and should gradually decrease upwards Three times a week an injection of fibrolysin Merk (2 4 cc) is given in the gluteal region After 2 3 months of this treatment the dimensions of the limb are usually very greatly diminished and the leg may appear almost normal In some of these cases elongated ovaloid strips of skin and subcutaneous tissue may then be removed and the wound sewn up Unfortunately the results are only temporary and sooner or later the pachidermia will develop again although the regular *use of crepe bandages and elastic stockings may delay it*

Culture of *Micrococcus metamycet cus* are available

SKIN DISEASES OF PARASITIC ORIGIN (ANIMAL)
COPRA ITCH

This dermatitis was described by me in Ceylon in 1911 in people handling copra The condition is due to an acarus like parasite *Tyroglyphus longior* Gervais 1844 var *castellanii* Hirst 1912 which swarms in many samples of copra and may occasionally be found on the skin of the patients though it does not remains there since it does not bury itself Apparently the mite induces the dermatitis in



Tyroglyphus longior var castellanii (Drawing)

the same manner as *Pediculoides ventricosus* Neuport which lives in diseased cereals and produces an eruption in persons handling such cereals

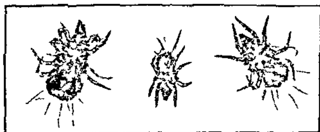
A description of this mite and others of the same group may be found in Castellani & Chalmers Manual of Tropical Medicine London 1919 pag 729

Experimental reproduction — When copra dust containing the mite is rubbed into the skin itching frequently begins very shortly after and twenty to forty eight hours later an extremely pruriginous urticarial or papuloid eruption often develops The same result is obtained by picking the mites out of copra dust and placing them (alone without any dust) on the skin under a covering such as a

piece of lint kept in place by a bandage The pustular stage which is due to scratching and secondary pyogenic infections did not occur as there was no time for it to develop since all the people refused to go on with the experiment after the second day Some individuals seem to be unaffected by the presence of the mite or the copra dust containing it

Recently a form of copra itch due not to the adult mite but to larvae of this and other mites has been described

Symptomatology — The hands arms legs and sometimes the whole body except the face present fairly numerous very pruriginous



Tyroglyphus longior var *castellanii* as found in copra dust

papules often covered by small bloody crusts due to scratching papulo pustules and pustules are al o generally present The eruption has no tendency to sponteneous cure while the patient goes on working in the infected mills

Diagnosis — On superficial examination the condition may easily be mistaken for scabies but burrows are not present and the two parasites are very different

Treatment — The best treatment is the daily application of beta naphtol ointment (6 to 10 per cent) The action in these cases cannot be compared to what takes place in scabies as in copra itch the acarus like mites remain for only a short time on the body and in most cases when the ointment is applied at night the parasites are

no longer there It may act as an antipruritic antiseptic and in this way diminish scratching and secondary pyogenic infections

It is probable that a small amount of the ointment may remains on the skin after the morning bath and be repellent to the mite in this way preventing the daily reinfection which otherwise takes place

WOUND MYASIS

During World War II in many parts of the tropics and subtropics and especially in North Africa war wounds often became heavily infested with larvae of various flies (Chrysoma Cordylobia Sar cophaga)

Notwithstanding the old belief that certain larvae not only are harmless but beneficial in my experience wounds always became much worse when so infested I had the luck of finding an extremely simple and very efficacious treatment simply pour on the wound and on the dressings a large amount of ether (sulphuric ether) the larvae are killed almost instantaneously and no inflammation is caused More particulars will be found in my book on African Diseases (Malattie dell Africa Rome 1947)

The reader interested in myasis and its aetiology might perhaps still find of interest perusing the old chapters on the subjet in Castellani & Chalmers Manual of Tropical Medicine London 1919 chiefly chapt 33 p 814 chapt 35 p 87 and chapt 67 p 1619

SKIN DISEASES OF UNKNOWN OR DOUBTFUL CAUSATION

DERMATOSIS PAPULOSA NIGRA

This condition which was described by me some years ago (Diseases of Central America Journ of Trop Med & Hyg 1925 xxviii 1) seems to be extremely common in negroes in Jamaica and Central America but I have also seen cases in negroes in Louisiana and other parts of the United States who have never been abroad and I have also seen cases in Africa

In a well marked case a large number of black or darkish brown papules somewhat cupoliform or at times flattened are seen on the

face principally on both malar regions they are usually rare or absent on the lower parts of the face and chin though a few may be present on the forehead They are not pruriginous or painful the maximum diameter of each papule varies between 1 mm and 4 or 5 mm In early cases the surface of the papule is smooth but later it may become slightly rough and verrucoid At times two or three papules appear during youth often at the age of puberty or soon after I have seen these papules present in small numbers in boys and girls of 14 to 18 years of age The condition gradually becomes



Dermatosis Papulosa Nigra

more marked the papules increasing in number and size as the patient becomes older it is not unusual to see middle aged men and women with their faces studded with these black papules

Histopathology — This has been studied by myself in conjunction with Professor Charles Duval The sections for histological study were fixed in Zenker s fluid paraffin blocks were made and the specimens cut and stained with haematoxylin and eosin The epithelium is somewhat shrunken and the stratum corneum is rather poorly represented except the keratinisation of the surface is marked in certain areas The stratum granulosum seems increased in amount

The pars papillaris of the derma is greatly increased in intensity presenting a cheloid appearance In many areas this forms a protuberant and branching projection which assumes a papillomatous arrangement although the layers of the surface epithelium have not proliferated There is some increase of the melanin in the deeper layers of the epidermis

Etiology — The etiology is unknown but it would seem that race is a predisposing aetiological factor the condition is extremely



Dermatosis papulosa nigra Histological section
Note great amount of pigment

common in Jamaican negroes I have however seen cases in mulattoes and one in a European who was born and brought up in Jamaica and also in negroes who were born in Louisiana and other states of the Union I have seen also cases in Africa Some authorities consider it to be of nevoid origin although it never develops before puberty

Diagnosis — The condition is to be differentiated chiefly from juvenile verrucae and from senile warts In early or comparatively early cases the papules do not have the appearance of ordinary juvenile verrucae lacking the well marked verrucose surface and pruritus common to this condition nor do they have the appearance of senile warts which are much larger and have a greasy surface

Prognosis — The condition does not influence the general health of the patient but has no tendency to spontaneous cure Generally it becomes progressively more marked with age

Treatment — Treatment is unsatisfactory The papules may be destroyed by using the micro burner or a strong solution of formal dehyde but as a rule small white scars remain permanently The coloured people object to these much more than to the black papules

MACROLICHEHN
(DERMATOSIS PAPULOSA SOMALIENSIS)

Terminology — I have suggested for this condition described by me in 1935 (British Journ of Dermatology October 1935) the term macrolichen owing to the presence of large pruriginous papules although neither clinically nor histologically has the disease any close resemblance to lichen planus An alternative term might be dermatosis papulosa somaliensis as all cases have so far come from Somaliland No doubt however further investigation will probably show that this dermatosis is present in other countries

Symptomatology — The condition begins with severe pruritus on the legs usually in the anterior aspect and after a short time papules develop In a well marked case a fairly large number of papules are seen on the skin of both legs which may be follicular or non follicular roundish or somewhat flattened seldom acuminated never umbilicated of various sizes up to that of a small pea of firm consistency of the colour of the skin or of reddish colour or whitish in Europeans they are discrete or aggregated in groups The inter vening skin is usually of normal appearance although a few excoria tions may be present due to scratching There is as a rule no pustulation or ulceration The course is chronic extending often to four or five years or even much longer The eruption seems to remain localized to the legs There is no hyper pigmentation Some papules may disappear spontaneously leaving no pigmentation at times a slight depigmentation may be noted

ILLUSTRATIVE CASE

Mr T R aged 28 years single went to Italian Somaliland years ago and remained there three years He came to consult me in March 1934 owing to a very severe pruritus on the legs which had developed while he was in Somaliland His general condition of health was satisfactory nothing to be noted at the examination of the various systems The blood was normal no eosinophilia Wassermann negative urine normal The examination of the stools did not show presence of helminths



Macrolichen

or protozoa or pathogenic bacteria The examination of the skin revealed the presence of a papular eruption localized to the anterior aspects of the legs The papules were fairly large up to the size of a small pea Most of them were non follicular a few were follicular Some of them were closely aggregated but remained isolated with no tendency apparently to coalesce into plaques The intervening skin was normal, but a few superficial excoriations due to scratching were present The superficial lymphatic glands (inguinal etc) were not enlarged The oral mucosa was normal The papules were pinkish or reddish a few especially among the smaller ones were pale Most of them were roundish none showed a typical polygonal outline or a central umbilication and none was surrounded by a zone of hyper pigmentation

A biopsy was made and the sections were investigated histologically with the kind assistance of Dr Macken ie Douglas and Dr Acanfora The histopathology as given in the general description is based on the investigation of these sections The peculiar bodies which will be described under histopathology were noticed by me

Microscop cal and Bacteriologi al Investigation — The microscopical exami nation of film showed nothing characteristic and the bacteriological examination of the papules did not show any specific germ on some media a few cocci grew

Course — I saw th patient agains several times during the period 1936 41 *The condition was practically the same and the pruritus was still severe* although apparently less severe than at the beginning His general condition of health was excellent

Histopathology — The des ription is based on *sections of a small nodule* removed by biopsy from the illustrative case quoted above

The *corneal layer* is somewhat scaly It remains however intact over th nodul of chronic inflammatory tissue Remains of an old haemorrhage can be seen between the outer layers

The *g anular layer* is very distinct with well marked keratohyalin granules

The *Malpighian layer* shows at the margin of a nodule steep interpapillary processes (alpine) but over the apex of the nodule the processes are flattened out and at places invaded by pale staining f brous tissue extending from the corium Prickles between the cells can be well seen at some places

The *ylindrical layer* contains pigment granules but not in excess This layer c nnot be distinguished at some places over the apex of a nodule

The *cutis vera* shows a fairly well def ned nodule mainly in the papillary layer *In this there are dilated capillaries surrounded by small round cells epithelio d* ells and eosinoph les Elongated cells with basoph l granules are also present No giant cells and no caseation are seen The appearance is that of a still active but *chronic inflammatory condition Very few polymorphonuclear cells are seen* Over the defined nodule the epidermis is stretched and the papillary processes have disappeared On the superficial area of the papillary layer of the derma are nodules and cy ts *in which the structure* of the epidermis can be easily demonstrated The outer portion of these nests consists of layers of cells of the Malpighian layer which show distinctly characteristic prickles Nearer the centre is a well marked granular layer and the centre is composed of concentric layers of cells of the same nature degenerated The appearance is that of a small portion of the epidermis n pped off by the chronic inflammatory tissue and forming a well-defined and regular nodule not unlike cell nest in an epithelioma The definite arrangement of the layers the absence of ep thel al cell out of the usual *relationship and the* long history in conjunction with the chronic inflammatory tissue differentiate it from a mal gnant growth In a tangential section of a small epithelial mass it can be seeen that *growth is active* In the outer or germinal layer can be seeen regular mitotic figures Four are seen in the section two of these being in focus

Some interesting and quite d stinctive bodies are seen lying in oval interspaces in the Malpighian granular and corneal layers of the epithelium With haemato-

xyl n and e›s n st n they a e coloured p nkish and stand out well from the darker sta ned t ssues arou d They e oval n shape and appear to h ve a capsule and look l k p sitic bodies which have not been identified Most of them show a clear space a ound them while the surround ng cells of the ep thel um are com pressed as f fo ming a bed n wh ch th l e W th haematoxyl n eosin the t ucture is not d st nct and some da k staining points are interdetermin te In sections st ned by G e s a very f ne ma g n t ned blu s seen insid which



Macrol chen

the e a f n l ne not st ined while the ma n sub tance of the body s blue In some the e is f nt suggestion of n cle wh le n one ase body lying n the mucous layer shows a d stinct cap ule with f ve oval de p blue stain ng nasses wh h look like the coils of parasite cut in s ction The sm llest of the e bod es is bo t 13 5 mi rons and the largest about 30 microns The average d ameter of ten bodies in d ffe nt s ctions 22515 m crons the sep at measurements in *micron being 30 14 21 28 27 27 13 5 18 23 20* Photogr phs show th se bod es wh ch do not resemble the cells adjacent They are suggesti e of the appea

rance of parasitic structures Are they larvae or eggs protozoa or peculiar fungal cells? It is impossible to say anything definite at the present time the problem should be further studied These structures do not seem to be ordinary degenerated cells

Etiology — This is unknown but the peculiar bodies described above should be investigated further

Diagnosis — This is based on the presence of fairly large very pruriginous papules and small nodules on the legs follicular and non follicular which have no tendency to coalesce although some of them may be closely aggregated they do not ulcerate are not hyperpigmentend and those which disappear spontaneously do not leave zones of hyper pigmentation they do not show any umbilication or a polygonal outline and do not present a verrucoid surface

Differential Diagnosis — The condition differs from lichen planus clinically and histologically The papules are never umbilicated or polygonal and there is absence of hyper pigmentation Moreover in the cases I have seen the lesions were localized to the legs only

With regard to lichen obtusus and lichen hypertrophicus these are merely varieties of lichen planus and on thorough examination a few typical papules of lichen planus will generally be found In addition some lesions usually coalesce producing thickened patches with a rough at times warty surface surrounded by a halo of hyper-pigmentation

Keratosis pilaris begins at a very early age the papules are all follicular and mostly contain a corneal cone the histology is quite different

Papular avitaminic eruption (phrynoderma) affects the whole body it is cured by giving vitamin A

Prurigo begins in infancy or childhood and the lymphatic glands are usually enlarged In prurigo nodularis the lesions are of larger dimensions and are not limited to the legs

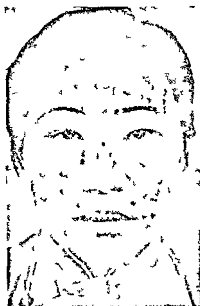
In creeping disease there are no papules or nodules but slightly elevated serpiginous lines

Prognosis — This is good *quoad vitam* but the condition apparently runs a course extending to years with *little or no tendency* to spontaneous cure

Treatment — Alcoholic solutions and ointments containing salicylic acid (2 %) or beta naphthol (1 %) seem to induce an improvement X ray therapy may be tried Vitamine and antibiotics tried in recent cases appear to be useless

POST PRICKLY HEAT NODULO PYODERMA

This condition was noticed by me many years ago in Ceylon and mentioned and briefly described in local publications I consi



Case of Post Prickly Heat Nodulo pyoderma (after Re s)

dered it closely related to pyosis nodularis — merely a variety of it — and grew from the cases the usual pyogenic cocci I believed it to be *often a complication or sequela of miliaria rubra*

It differs from the typical pyosis nodularis in the face being usually the region most affected Reiss has investigated the disease

in China and has called it syringadenitis suppurativa tropicalis (Journ Labor Clinical Med Vol 28 No 9)

Numerous nodules are present mostly of the size of a split pea *Some never come to suppuration and slowly disappear without leaving* any mark others suppurate and leave small scars and hyperpigmentation Occasionally there may be slight fever and according to Reiss there is often hypoglycaemia The condition may last several weeks and even months

Histologically the sweat ducts are dilated and invaded by leucocytes and cocci Rarely the sebaceous glands are involved Reiss as stated has called the condition syringoadenitis tropicalis He does not give importance to the pyogenic cocci present and considers the affection due to lack of vitamin C

Diagnosis — The eruption looks very much like an iodine or bromide rash but the history rules this out

Treatment — In the old days before sulphonamides and antibiotics were introduced the treatment was difficult the best being by vaccines At present penicillin is given by injection and sulphonamides by mouth Auromycin Chloromycin Terramycin and other more recent antibiotics may be prescribed Local treatment consists in sponging with a 2 % alcoholic solution of salicylic acid Reiss advises ascorbic acid in large doses (grm 0 20 0 30 daily)

MAMMILLARIA

This condition was noticed many years ago by Chalmers and myself in Ceylon but we did not give it a name considering it merely a sequel of prickly heat as in reality is It is characterized by the presence of very namerous small pale elevations which although very closely set never fuse together to form plaques It has been studied in recent years by a number of workers among whom Horne and Mole (Trans R S Trop Med 1950 pag 150)

ERYTHEMA BLASTOMYCETOIDES
(ERYTHEMA TUMIDUM BLASTOSIMULANS)
(ERYTHEMA TUMIDUM MAMMILLATUM)

I have seen two cases of this peculiar condition which as far as I know has not been described before Numerous aggregated ele



Case of Erythema Blastosimulans The eruption lasted a few weeks and disappeared abruptly

vated polygonal or roundish patches each of which $\frac{1}{2}$ to 3 cm and more in diameter are present the surface appears mammillated showing numerous small soft pinkish elevations which are never ulcerated In both cases the region of the body most affected was the back of the neck The lymphatic glands were not enlarged Gene

ral health not affected No pyrexia no pruritus no pain no tenderness no dermographia The blood *did not show any abnormality* Wassermann test negative Urine normal Microscopical and cultural examinations of the lesions for fungi bacteria and protozoa negative

The diagnosis is most difficult Both cases were sent to me as possible cases of blastomycosis but in both the eruption had appeared *abruptly* *In both* the complaint which had resisted all kinds of treatment disappeared almost suddenly after about eight weeks from the onset without leaving any mark In my opinion the *condition is* probably of the nature of erythema polymorphum although all the lesions were of the same type

DERMATITIS NODOSA RUBRA

This condition was observed by me in Ceylon many years ago I gave a description of it in Castellani & Chalmers Manual of Tropical Medicine (1919) pag 2249

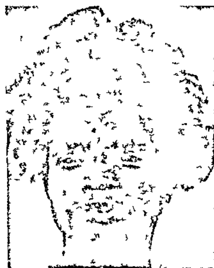
The aetiology is unknown the histopathology shows no characteristic features but has not been completely investigated

Symptomatology — The first impression received on seeing a patient suffering from this peculiar disease is that he is suffering from smallpox in the papular stage of the eruption but the absence of fever and the closer inspection of the eruption will exclude smallpox at once In a well marked case the patient presents on his face arms chest back and practically the whole body numerous large papules and nodules The colour of the eruptive elements is an angry red the shape hemispherical or roundish the size from a *small split pea* to a large pea The surface of the papules and nodules is smooth does not show umbilication nor scales their consistency is hard most of the papules are not follicular Theres is unbearable pruritus but the malady has no urticarial element whatever Several of the superficial lymphatic glands are enlarged and hard Spleen not palpable In several cases a well marked enlargement of the parotid gland is *present* The blood shows a certain degree of eosinophilia no leucocytosis The course of the disease is long — six months to a year and sometimes much longer the nodules become gradually smaller

and may disappear completely they leave no scar or zones of hyper pigmentation but occasionally the skin takes a sligthly scaly or exzematoid appearance Recurrences may be observed

Diagnosis — From a *syphilide* by the extreme pruritus the negative Wassermann and the inefficacy of antisyphilitic treatments

From *smallpox* the papular stage of which it closely resembles by the absence of fever by the chronic course and by the fact that



Dermatitis nodosa rubra

the papules never undergo a purulent change nor leave scars on healing

From *lichen planus* by the papules being very large and by their not being flattened umbilicated nor polyhedric

From *pityriasis rubra pilaris* by the papules being very large and most of them not follicular and by the absence of plugs and scaling

From *folliclis* by the condition not being limited to the extremities and by the absence of central crusts

From *erythema multiforme* by the eruptive elements being well defined persistent solid papules and nodules

Prognosis — In most cases the general health is not much affected but the patient complains of the disfigurement and the severe



Dermatitis nodosa rubra

pruritus and the course of the disease is a long one Occasionally after many recurrences death ensues

Treatment — Arsenic potassium iodide mercury do not influence the disease To ally the pruritus salicylic alcohol lotions (2 per cent) and ointments may be used Sulphonamides and antibiotics were not tried as the cases were studied before such drugs came into use

DERMATITIS NODULO PUSTULARIS ABACTERICA DISSEMINATA

The first impression on seeing a patient affected with the diseas is that patient is a case of generalized syphiloderma pustulosum If fever were present one might also easily think of smallpox Th



Case of nodulo pustolosis abacterica in a young girl aged 17 Tuberculin test negative Wassermann test negative

patient is in good general health but the whole body is covered by papules and papulo pustules some follicular some non follicular the size of a millet seed to a small pea

Pustular lesions may be found also on the oral mucosa The superficial lymphatic glands are not enlarged or only slightly

The eruption lasts some weeks and then disappears the papulo pustules and pustules involuting without rupturing and without usually

leaving scars Some papulo pustules may show a necrotic apex but as a rule no scarring results After a few months however there i usually a relapse Several relapses may occur during a period of two to three years The microscopic and cultural examinations of the pustules show absence of parasites and bacteria

The condition has to be differentiated from a tuberculide scars not being left when the lesions involute and the tuberculin test being negative It differs from dermatitis nodularis necrotica of Werther in the absence of scars and absence of haemorrhagic lesions It differs from papulo pustular syphilodarma by Wassermann being negative It differs from all known common pyodermata in the papulo pustules and pustules not containing pyococci or other bacteria

The treatment is most difficult Penicillin in vary large doses is definitely useful

DERMATITIS MONOBULLARIS ABACTERICA (MONOBULLA ABACTERICA)

The patient complains of discomfort and pruritus localized to a small area of the arm and more rarely of the trunk He looks at the part and notices a rather large perfectly roundish red patch the size of a shilling to a half crown The patch may be slightly elevated and is usually sharply marginated One or two days later a large bulla forms in the centre of the patch or occasionally at the periphery of the patch It is usually at this stage that the patient will seek medical advice

Rarely the patient thinks that the patch developed at the site of in insect bite and on these rare occasions he is very vague about it he does not know what insect bit or stung him and no haemorrhagic spot is seen marking the site of the bite or sting When fully developed the bulla is the size of a large pea or that of a bean or even a small cherry It may be tense or flaccid It is filled with clear serum

Etiology — The cultural examination of the liquid of the bulla carried out in the usual way employing the ordinary laboratory media is negative In films from the serum stained by Giemsa s numerous coccoid or coccobacillary bodies stained pinkish or reddish are often

seen closely resembling rickettsiae The subject requires further research Personally I believe that sooner or later it will be demons trated that some insect has to be incriminated although not the ordinary blister beetles as all my cases were observed in Rome where blister beetles are unknown

Course — The affection takes about 2 3 weeks to heal spon taneously As a rule only one bulla is present during the whole course There is no fever and never any sign of lymphangitis or secondary pyogenic infection

Diagnosis — This is based on the presence of a perfectly round large (2 3 cm) red pruriginous somewhat elevated infiltrated patch in the centre of which after 24 48 hours a large bulla forms with aseptic contents

In dermatitis bullosa from blister insects as a rule there are several bullae often arranged in a line and the bullae aris «d emble» Bed bugs produce oedematous nodules

Treatment — The fucsin paint which goes by my name applied twice daily greatly accelerates the cure

DERMATITIS BULLOSA ASEPTICA SYMMETRICA PALMARIS ET PLANTARIS

Large bullae are seen on the palms of the hands (occasionally also on the backs) and similar bullae may be present on the soles of the feet They may be tense or flaccid Their si e varies from that of a pea to that of a bean

Usually there is little or no pruritus and hardly any pain or tenderness The intervening skin does not show signs of inflamma tion There is no hyperkeratosis and no marked desquamation The bullae may rupture spontaneously and then raw areas are seen which may become occasionally infected The disease runs a very long course usually many years with prolonged periods of complete disappearance of the eruption

The general condition of health remains good The Wassermann test is negative The microscopical examination of the blood does not show anything abonormal no eosinophilia The serum of the bullae is aseptic

The condition is not a form of *pemphigus vulgaris* as although there are many relapses the prognosis is good *quoad vitam*

It may be related to Andrews bacteride but exfoliation is much less marked in fact practically absent and in all my cases no focus of infection could be found It may possibly be related to *psoriasis pustularis* although in none of my cases psoriasis lesions were present It has been suggested that it is a form of epidermolysis bullosa and that it is related to Weber s Synlrome although there are no seasonal recurrences

The treatment is very unsatisfactory Resorcin and salicylic lotions and ointments are useful Arsenic internally seems to do good in some cases

ACRODERMATITIS VESICULOSA TROPICA

This disease was described by me in Ceylon (Castellani & Chalmers Manual of Tropical Medicine all editions) It is of rare occurrence

The aetiology is unknown but the affection may be of neuritic origin It does not seem to be connected with leprosy in all my cases the search for Hansen s bacillus being negative and anaesthesia and other signs of leprosy being absent No history of traumatism was elicited in my patients

Symptomatology — In a well marked case the skin of both hands especially the fingers appears glossy and tense the fingers often assuming a tapering shape *Translucid vescicles the size of a* millet seed or a little more are seen deeply embedded in the skin of the fingers They have clear contents and the bacteriological examination reveals absence of any bacterium They may remain unchanged *for a long time* then may slowly disappear or a few may break leaving very small superficial ulcers which heal spontaneously and do not coalesce The patient generally complains of very severe

pain in the hands and fingers which may be continuous or may be of neuralgic intermittent type Pruritus is absent There is often diffuse hyperaesthesia anaesthesia is never present No thickenings are found along the nerves of the arm The general health is not affected

Course and Prognosis — The course of the disease extends to several months and occasionally to two or three years with periods of great improvement Ultimately the condition may get cured spontaneously The general health is not affected but the patient is unable to work with his hands

Diagnosis — This is based on the patient complaining of severe pain in the hands and fingers on the presence of deep seated cheiropompholyx like vesicles on the glossy skin and on the long course of the complaint

The condition is differentiated from cheiropompholyx by the severe pain and absence of hyperidrosis from a leprotic condition by absence of anaesthetic patches and absence of other signs of leprosy on other parts of the body Moreover although the course is long the disease generally becomes cured spontaneously From dermatitis repens of Crocker and acrodermatitis perstans of Hallopeau by there not being history of traumatism by absence of exfoliative lesions by the less severe objective signs and by the absence of the large foci of disease with marked borders and fringed with sodden epithelium

Treatment — The regular application of an ichthyol ointment (2 to 5 per cent) to the hands and fingers and the administration of the same drug (grm 0 20) three times daily by mouth is beneficial

ACNE NECROTICA PROFUNDA VEL MALIGNA

The ordinary type of acne necrotica (acne frontalis acne varioliformis) is quite common in the tropics but I should like to call attention to the extremely severe type of it of which I have seen two

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cases One contracted the disease in Brazil *the other in Tropical* Africa

The lesions are found not only on the forehead but also and in fact chiefly on the cheeks and nose At complete development they are narrow ovaloid elipsoid deep ulcers followed after a long time by large disfiguring scars

Each lesion appears to begin as a folliculitis and the bulb of the extracted hair is encased *in a mucilaginous substance*

All microscopical and bacteriological examinations for a specific germ are negative Only a few ordinary pyococci are present

The course of the disease is very prolonged 5 to 6 years and longer

The only treatment that gives fairly good results although only temporary ones is by X rays

KERATOMA PLANTARE SULCATUM

Historical and Geograprical — This disease was first desc ibed by me in Ceylon A description of it was given in *all* the editions of Castellani & Chalmers Manual of Tropical Medicine In the third edition (1910) it is given at pag 2258

Etiology — This is unknown The affection is much more frequent during the rainy season and occurs generally in natives who do not wear shoes or sandals but I have seen a typical case in a European of *good social standing It improves or disappears com*pletely during the dry season According to Acton and Macquire the disease is in reality a form of keratolysis rather than hyperkeratosis Acton and Macquire have grown an actinomyces *(Actinomyces keratolyticus)* from most of their cases which produces proteolytic enzymes The fungus grows best under aerobic conditions and at blood heat 37 C The cultural characters are similar to the red and black *fungi* found in certain cases of mycetoma of the foot Acton and Macquire s resulte have not been generally accepted C G Aars who made a thorough investigation of the disease in South America (Arch of Derm & Syph 271 1931) suggested the name kerato dermia plantaris sulcata (Castellani)

Symptomatology — The ep
anterior portion — and the heel
rally of a dark yellowish co
segmentary furrows straight se
appear black but if the dirt and
the fundus of these sulci will be
is no sign of any local inflamm
complains of tenderness of the



Keratoma

Diagnosis — This is based
deep sulci and punched out hol
are absent in lesions of the sole

Moreover the Wasserman
treatments have no effect wha
lesions of the soles of the fee

Prognosis — The general health is not affected but the condition may last for months and if the patient has much walking to do may become very painful

Treatment — Antisyphilitic drugs are useless Rest and local applications of salicylic ointmente or salicylic collodion (ac salicylic



Keratoma plantare sulcatum

3 grm 4 collodion grm 30) or salicylic plasters *induce a marked* improvement

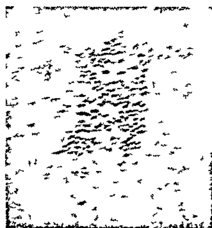
LICHEN CONVEX
(LICHEN PILARIS CONVEX)

This affection — which has been described by me — is very common in Ceylon especially among natives A description of it

with illustration was given in Castellani & Chalmers Manual of Tropical Medicine (1919)

Symptomatology — The regions of the body most affected are the chest dorsum and shoulders The disease is characterized by the presence of numerous firm small papules all of which are follicular

The surface of the papules is smooth no squamae or plugs are found they have always a convex surface and may be almost



Lichen Convex

hemispheric 1/12 to 1/8 inch in diameter The colour of the papules has a pinkish hue in natives and red in Europeans they have no inflammatory base they are not surrounded by any halo of inflammation nor is there hyperpigmentation nor do they leave pigmented areas on healing The eruption is very pruriginous The region affected may show hyperidrosis The general health is not affected the lymphatic glands are not enlarged in a few cases the blood may show a slight degree of eosinophilia

The course is long the eruption lasting three to nine months and often recurring When the eruption heals no hyperpimentation is left

Diagnosis — From *Pityriasis rubra pilaris* by the papules never showing plugs and by the absence of scaling from *Lichen planus* by the papules not being flattened nor polygonal nor umbilicated from *Lichen nitidus* by the papules being follicular and most pruriginous from *dermatitis nodosa rubra* by the papules always being small and follicular from *papular eczema* by the papules always being follicular and larger and dome like with absolutely no inflammatory base and by the skin not presenting a diffuse inflammation and no moist lesions whatever the stage of the disease Moreover even when the eruption is of long standing the appearance of the skin between the papular elements remains quite normal and there is no sign of what the French call *lichenification*

Prognosis — The eruption lasts for several months but generally heals spontaneously recurrences occur The general health is not affected

Treatment — Potassium iodide mercury and arsenic have no effect Externally antipruriginous lotions and ointments may be used — as for instance a salicylic alcoholic lotion (2 per cent) followed by a naphthol ointment (2 to 5 per cent) A change to a cool climate is very beneficial

MICROPUSTULOSIS KERATOGENICA SPINULOSA OF THE LANUGO HAIR (MICROPUSTULOSIS FOLLOWED BY LICHEN SPINULOSUS)

On the skin of the chest and occasionally of the shoulders and other parts of the body minute pustules the size of a millet seed and less are seen each pierced by a lanugo hair The pustules are aseptic By a peculiar keratogenic process after a time the minute pustules without usually rupturing are transformed into corneal elevations or papules often surmounted by a horny spine so much so that the eruption in this later stage can hardly be distinguished from lichen spinulosus

SUBCUTANEOUS POLYMICROLIPOMATOSIS

This condition described by me in Ceylon (Castellani & Chalmers Manual of Tropical Medicine) seems to be common in the tropics in Europeans and natives alike It is characterised by the presence of subcutaneous nodules found only on palpation roundish or oval painless the size of a pea to a small nut They are generally situated in the subcutaneous tissue of the arms legs and abdomen and in our experience are not rarely mistaken for enlarged lymphatic glands On tapping them with a sterile syringe only a trace of fatty material is removed which when placed on a slide promptly



Seborrhoea nodular and spinulosa (tip of the nose)

dissolves when heated or treated with ether The microscopical examination of one of these nodules surgically removed showed it to be composed of fatty tissue Occasionally the tumours become much larger and may be plainly visible as ordinary lipomata

MULTIPLE MICROCHELOD OF UPPER LIP

Occasionally one comes across a middle aged European woman showing on the upper lip a number of extremely minute discrete or at times closely aggregated whitish cheloidal elevations the size of a pinpoint to that of a very small pinhead This condition develops

years after electrical epilation for hypertrichosis of the upper lip No *treatment is of any avail* «Cover mark» and similar preparations may hide the condition

SEBORRHOEA NODULARIS ET SPINULOSA

This condition has been observed by me in various parts of the tropics and the Balkans It is characterized by the presence of numerous yellow plugs some of which may be acuminate and hard several millimetres in length These plugs project from the orifices of the pilo sebaceous follicles and are often situated on an oily skin Ordinary black comedones are absent

LIPOATROPHIA ALBUMOSURICA

(Subcutaneous fatty tissue atrophy and albumosuria)

This disease was described by me in the Anais do Instituto de Medicina Tropical Dezembro 1946

Symptomatology — The onset is very slow Usually the patient complains for some time of feeling tired and disinclined to work Then the skin of some regions of the body chiefly the arms develops a mottled appearance due to the presence of reddish or purplish spots There may be some neuralgic pain Slowly the subcutaneous fat tissue disappears and the skin hangs down in folds The course is very chronic the disease lasting for several years The progress is fairly rapid for a period then becomes extremely slow may stop altogether and occasionally there may be an improvement In one of my cases the case seen in England the condition had been present for four years when I first saw him The patient died two years later from an intercurrent disease (pneumonia) after a slight but definite improvement in the skin condition had taken place

Blood — A slight anemia of the hypochromic type may be present The number of leucocytes is about normal and no eosinophilia has been noted The number of lymphocytes may be much above the normal The differential count in one of my cases — the English one —

gave *the following result Polymorphonuclears 52 per cent lym* phocytes 43 per cent large mononuclears 3 per cent eosinophiles 2 per cent

Urine — The urine contains a large amount of albumose On heating cloudiness appears long before the boiling point is reached *it begins to appear at 50 C and increases to a heavy turbidity by the* time boiling point is reached If then a large amount of 20 per cent acetic acid is added (2 cc of it to 8 cc of urine) the cloud clears to a great extent or disappears completely to return on cooling



Lipoatrophia albumosuria

Etiology and Pathology — Nothing is known regarding the etiology of the malady Examination of sections of the skin obtained by biopsy in one of my cases showed practically complete disappea rance of the fatty tissue The epidermis and dermis did not show any distinct abnormality

Diagnosis — This is based on the marked atrophy of the adipose subcutaneous tissue as shown by the skin hanging down in folds and on the presence of albumose in the urine

The condition differs from the atrophy of the adipose tissue of the skin described by Gilchrist and Ketron in a little girl as in the latter condition the affection began with palpable nodules in the

subcutaneous tissue and whitish somewhat morphoealike macules and patches developed while the urine was normal in other forms of atrophic syndromes also the urine is normal

Prognosis — This is serious as the disease has little tendency to spontaneous cure The general health may remains fairly good for years but the patient feals weak and nervous and this greatly interferes with his work

Treatment — All treatments tried have failed but the administration of parathyroid extract seems to be of some slight use

LYMPHO FIBROMATOSIS

This is a condition of elephantoid fibrosis observed by Chalmers and myself in Ceylon and Africa (Castellani & Chalmers Manual of



Lympho fibromatosis

Tropical Medicine London 1919) It is sometimes associated with a secondary pyogenic eruption Some cases may be associated with

filariasis but others are not The skin is elevated into large raised flattened areas of fibrous consistency The condition is chronic

SYMMERICAL PALMAR ERYTHEMA

Chalmers in 1899 drew attention to a symmetrical non prurigi nous palmar erythema found in Europeans on the Gold Coast and extending along the ulnar side of the palms of the hands The affection was very persistent I have seen cases in Ceylon and other tropical countries

ERYTHEMA PERIANALE PERSTANS

This condition is not rare in Europeans living in the tropics especially with a delicate white skin

A circular erythematous zone is seen occupying the perianal region which does not itch or show inflammatory signs there being no swelling or infiltration or tenderness

The border of the erythematous zone is abrupt but not redder than the rest of the patch and not elevated The condition persists for many months and even years without exudation or eczematoid changes

No fungi are found

A lead lotion may be used such as Liq plumbi fort grm 4 zinci ox grm 6 glycerine grm 2 Aq dest ad grm 200

An ichthyol paint seems to be useful Ichthyol grm 4 aq dest ad grm 30

OCHRODERMATOSIS

While in Ceylon I came across among Europeans living in the low country three cases of a peculiar generalized yellow pigmentation of the skin which I did not think was ordinary carotenosis (auran tiasis) as none of the patients was having a diet rich in carrots

oranges yellows of eggs etc Moreover the pigmentation disappeared rapidly on the patient going to the hills They were not taking any medicine nor exposing themselves to the action of any toxic substances and they were certainly not taking *picric acid which as well known* gives a diffuse yellow pigmentation of the skin and is much used by malingerers to simulate jaundice In those days atebrin was unknown The pigmentation was a bright yellow or saffron colour quite different from the yellowish greenish colour of jaundice The sclerotiae remained completely white and the urine was of normal colour and composition The sweat was not coloured The general health was in no way affected but naturally the patients greatly objected to the disfigurement The condition disappeared on the *patients going to a cool* climate without any treatment or change of diet

A detailed description of the condition may be found in Castellani *& Chalmers Manual of Tropical Medicine London 1919* (pag *2236*)

XANTHODERMA AREATUM

This affection which has been described by me in Castellani & Chalmers Manual of Tropical Medicine(all Editions 1910 1913 1919 (p 2237) is not infrequently met with among Europeans it *generally affects the lower parts of the legs it starts very insidiously* with a yellowish or reddish yellow spot which is not elevated the surface is smooth not furfuraceous there is no infiltration and apart from the colour the affected skin is normal There is no pruritus and no pain The yellow spot slowly increases and one or more other spots may appear near the first one or at a distance Some of the spots may coalesce together forming a large yellow red patch of irregular or various outline The larger patches also apart from the *colour are* normal being of normal consistency and elasticity The disease is very chonic The general health is not impaired the lymphatic glands are not enlarged and the blood does not show any abnormality urine normal *In all my cases syphilis could be excluded* in none was there any history of traumatism

Diagnosis — From chloasma xanthoderma areatum is readily differentiated by the lighter yellow or yellowish red colour and by

the different situation The affection can be easily distinguished from xanthoma as the texture of the skin is normal and the patches are not elevated In pseudo xanthoma elasticum of Baker there is an eruption consisting of mesh like patches of buff coloured infiltration lumpy in some places in others linear It must be distinguished also from Schamberg s so called «cayenne pepper» condition characterized by the presence of brownish yellowish patches on the legs made up of small puncta giving rise to cayenne like appearance of the skin found at times on people suffering from varicose veins

Treatment — This is difficult in some cases an energetic exfoliation treatment by resorcin pastes (resorcin grm 8 ac salic grm 1 30 Lassar s paste grm 30) improves the condition after the inflammation induced by the paste subsides

MELANONYCHIA FALCIFORMIS

In Ceylon I have described in two European ladies a peculiar condition of the nails characteri ed by a band of black pigmentation along the free border of the nail On superficial examination it has the same appearance as though some dirt has accumulated beneath the free border of the nail but on scraping this pigmentation does not disappear and this shows the condition is due to some pigmentation in the substance of the nail No fungi were present The sufferers were in general good health not using any internal or external medicine or cosmetic which could account for the pigmentation and the nails apart from this line of pigmentation appeared perfectly normal Later I came across a case in a European gentleman in the same country and I have seen another case in Macedonia

The condition slowly disappears spontaneously

CHLOASMA SYMMETRICUM

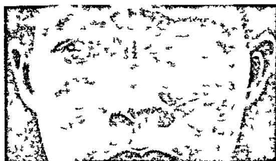
This condition which has been described by me (Castellani & Chalmers Manual of Tropical Medicine all editions) is often met with in Singhalese who greatly object to it This is characteri ed by

the presence of two dark brownish chloasma patches situated symmetrically one on each cheek generally on the malar region In some cases in addition to these two patches a third one is found on the nose The colour of the patches is generally dark brownish very rarely bronzine The causation is unknown it does not seem to be congenital No treatment is of any avail

CHLOASMA BRONZINUM

This somewhat rare affection is met with among individuals of the Indigenous Races as well as Europeans in India Ceylon the Malay States China and other tropical countries

Etiology — This is unknown but a life in the open air with daily exposure to a tropical sun is apparently an important predis-



Chloasma symmetricum

posing cause All my patients were European planters or native overseers of coolies

Symptoms — Part of the face or the neck or occasionally the whole face neck and chest presents peculiar pigmentation resembling a black bronzine mask the pigmentation areas slowly but steadily increase The disease is very chronic and incurable if the patient remains in the tropics The general health is not impaired The

examination of the various organs is negative The blood and urine are normal

Diagnosis — This is easy even in very dark skinned natives the affected parts being completely black and having a characteristic bronzine hue.

From ordinary chloasma which is not rare — especially among women — the affection is easily distinguished by the bronzine tint The absence of asthenia loss of flesh and diarrhoea will suffice to distinguish chloasma bron inum from *Addison s disease* the history and examination of the blood will differentiate it from malarial *pseudo Addison s* disease the examination of the urine will distinguish it from *diabetes bron inum* *Argyria* will be excluded by the history by the fact that in chloasma bron inum the mucosae are not affected In *ochronosis* the cartilages ligaments and fibrous structures become pigmented and the discolouration is best seen about the knuckles and tendons of the hands and feet moreover the urine often blackens on exposure to the air (alcaptonuria)

Prognosis and Treament — The disease seems to be incurable but a long stay in a temperate one generally improves it especially if combined with a cure of waters at Vichy or Montecatini

DERMATOSIS FESTONATA FRONTALIS

Historical and Geographical — The condition has been described by me in Ceylon (see *Castellani and Chalmers Manual of Tropical* Medicine 1919 pag 2234)

Etiology — This is unknown but probably a continuous exposure to the sun and glare plays a certain role in the causation of the malady

Symptomatology — The affection which in its severe type is rare is found in Europeans who have resided for many years in the tropics and who have lived an open air life such as planters and overseers exposing themselves to the sun for long periods of time

In a well marked case there is a festooned margin at times slightly raised often of vivid bright red or coppery red colour while the skin which it encircles has a peculiar whitish occasionally leuco derma like appearance and may be slightly atrophied or at times small patches oh hyper pimentation may be present There is very little or no pruritus and sensation to the touch pain heat and cold is not impaired

The course is extremely long the affection slowly expanding peripherally and in a tropical climate has no tendency to sponta neous cure

Diagnosis — The affection is not rarely taken for a trichophytic condition but the microscopical examination for fungi is always



Dermatosis festonata frontalis

negative and an antimycotic treatment does not induce any impro vement From a syphilide it is differentiated by the negative Wassermann and by the uselessness of salvarsan potassium iodide and other antiluetic medication *from leprosy by the sensation being* normal

Prognosis — The general health of the patient is not affected but the condition has no tendency to spontaneous cure in the tropics It gets much better if the patient goes to reside in a cold country

Treatment — The treatment is very unsatisfactory The patient must be advised not to expose himself to the sun and glare though it is doubtful whether the condition is due simply to such exposure A wide brimmed topee or sun helmet lined with red cloth may be used

Of the many drugs tried ichthyol seems to be the only one which at times keeps in check the condition occasionally inducing slight improvement It is given internally in 5 grain (0 30 gram) doses three times daily before meals and an ichtyol ointment or lotion (5 per cent) may be applied to the affected skin at night while during the day a calamine lotion may be used

Mercury potassium iodide and arsenical preparations as well as antibiotics and vitamins are useless

SOLAR TRIANGULAR DERMATITIS

In women who wear blouses with a triangular opening at the neck not rarely a peculiar type of chronic olar dermatitis develops limited to the exposed triangular portion of the upper chest and characteri ed by the presence of diffuse or patchy sunburn and sparse most pruriginous small persistent reddish papules The pruritus is not continuous but comes in bouts

In the ordinary type of solar dermatitis and sunburn such papules are not seen and pruritus is usually absent The treatment is most difficult Salicylic acid and menthol alcoholic lotions (1 %) are useful and of course the wearing of blouses opened in front must be discontinued or red veils may be used To prevent the condition the following lotion is useful Salol grm 1 zinci oxid grm 5 menthol grm 1 alcohol purum grm 50 glycerine grm 2 aquae dest ad grm 150 Or the following may be prescribed salol tannic acid aa grm 2 alcohol purum 100

After applying the lotion and letting it evaporate the following powder may be used inc oxide starch tannic acid ana grm 10 The powder is slightly yellowish

PSEUDOTINEA INTERDIGITALIS PEDUM (DERMATOSIS INTERDIGITALIS HYPERCHERATOTICA)

This affection may be connected perhaps with the dermatosis interdigitalis alba (p 2155) but is a much more serious condition I have seen and studied four cases three had been diagnosed by their medical attendants as tinea pedum or athlete s foot although very many antimycotic treatments had been used with no effect The fourth one came to see me without having had previous medical attendance Quite recently I have seen a fith case in a very early stage

The first impression on seeing this condition is that it is mycotic but microscopically and culturally fungi are completely *absent A few cocci and a few bacilli may be present but always in*



Pseudotinea interdigitalis pedum Early stage

scanty numbers In one of the two cases sent to me the patient had done such thorough treatment with various antiseptics and antibiotics that agar media and glucose agar media inoculated with scrapings remained sterile on two occasions

The inner and under surface of the toes and webs present a white somewhat marginated appearance and there is a well marked diffuse hypercheratosis with scabrosities but no callosity No vesicles and no bullae are present A few fissures may be present There is no pruritus and no pain The condition remains limited to the regions mentioned and no similar lesions are found on other parts of the foot What is the nature of this affection? It certainly is not of mycotic origin nor in all probability of bacterial origin Is it a condition related to *psoriasis flexuralis*? No *signs of true* psoriasis were seen in these cases and according to the history given by the patients and in two of the cases by their doctors there had

never been any signs of psoriasis whether typical psoriasis or psoriasis flexuralis In the last but one case a biopsy was made but the histo logical investigation has not shown any specific lesion only hyperche ratosis and some foci the parvicellula infiltration in the dermis No Monro s intraepidermic microabscesses were noted It seems therefore to be different from psoriasis It does not appear to be related to Andrew s bacteride as no bullae are present and in my cases the condition was limited to the toes

Prognosis and Treatment — The condition runs a chronic course lasting for years and is most difficult to cure Antimycotics appear to be u eless As all the patients object to the white appearance of the lesions salicylic acid salves should not be used as after a time they make the lesions whiter although much smoother Two ointments I have found useful a tannic acid ointment (6 %) and an ointment with the following formula Hydr Ammoniati grm 1 3 Sulphuris praec grm 1 3 Vaseline grm 30 When prescribing the latter ointment it is advisable to write on the prescription for the benefit of the che mist that the prescribing of sulphur and white precipitate together is made on purpose everybody knowing that the general rule is never to order an ointment containing both these substances owing to the pigmentatition which may be caused by their interaction

The use of a sulphur powder in association with a mercury perchlorids lotion (1 1000) for many months is also useful It darkens the skin but this is just what the patient desires

ABYSSINIAN GUM TATTOOING

The newly arrived medical man in Abyssinia is often surprised at seeing the peculiar dark bluish colour the gums of many Abyssinian women have This is due to the habit so many native women have of tattooing their gums with lamp soot The tattooing is carried out by means of a spine from a native shrub

XUDIS

The newly arrived European physician in examining natives of Borneo Java and Malaya is often struck by the peculiar appearance

of the skin of the abdomen The skin presents a large number of hyperpigmented patches brownish or yellowish roundish or ovaloid or of irregular outline interspersed with smaller depigmented patches so that a sort of mosaic like pattern is produced

The patches are smooth not raised not pruriginous not painful not tender Sensation normal The pigmentation is permanent The condition is found in every social class even the highest

This dermatosis has nonplussed many medical men and has been considered by some to be a congenital nevoid condition In reality the condition is due to the habit native nomen have in order to prevent chills in their babies to rub into their bellies saliva after chewing betel and at times they actually apply the betel paste These applications induce erythematous patches followed by permanent pigmentation

DERMATOSIS INTERDIGITALIS PEDUM ALBA

(Leucosis Interdigitalis Pedum)

The skin of the interdigital web between the 4th and 5th toe and inner surfaces of other toes present a peculiar whitish smooth madreperlaceous appearance with no sign of inflammation or desqua mation *and no pruritus or other subjective symptoms No sodden appearance Fungi are not found* but staphylococci and proteus germs may be present in scanty numbers The aetilogy is unknown Occa sionally a similar condition is noted in patients who for months and months have used a salicylic ointment

Possibly the condition may be the very first stage of the disease described at pag 2073 with the name of Pseudotinia interdigitalis but so far I have not seen any case of the first condition turning *into the second*

ACHROMIA FLAVA FACIEI AMYCOTICA AB INITIO

(*ACHROMIA NON PARASITICA*)

In this condition described by me on the face one or two or *three seldom more* roundish or ovaloid patches of partial depigment

ation develop which in negroes appear of a yellowish colour There is no sign of inflammation and no pruritus The patches which on complete development are usually between a sixpenny coin and a shilling in si e are smooth but after some time the surface may take a very delicate minute crinkled appearance which is hardly visible No fungi are found not even at the very beginning of the development of the patches and this immediately distinguishes the condition from Pityriasis flava (Pityriasis versicolor tropicalis) and also distinguishes it from the yellow patches which often remain in Tinea flava when the fungus has been destroyed or has disappeared as in these patches at the beginning of their development and for some time after Malasse ia fungi are always present

The condition must be differentiated from solar or sunlight pseudotinea flava guttata in which hyperpigmentation is present in addition to apigmentation The latter condition is typically character ized by the presence of numerous small partly depigmented light yellowish or whitish roundish patches on deep sunburn Noevus anaemicus is congenital Sabouraud s pityriasis alba often found in children is of streptococcus origin and the patches appear whitish owing to the presence of minute scales

I thought at first that the condition was a form of pinta but such cases never progress to complete depigmentation and the Wassermann is negative No treatment is of any avail but in a few cases the condition becomes cured spontaneously A brief account of it may be found in the Journal of Tropical Medicine & Hygiene Vol xviii 1 1925 and a fuller one in the same Journal 1939

INCRUSTATIO UMBILICALIS

(Umbilical Incrustation)

In the tropics and occasionally in the temperate zone especially in people wearing woolen cholera belts or a thick woollen vest the umbilical cavity may show peculiar incrustation like masses of grey whitish yellow brownish or black colouration often firmly adherent to the skin frequently quite hard though not painful Occasionally these masses may be the starting point of an umbilical and peri umbilical dermatitis Microscopical examination reveals a large amount

of detritus fat globules often woolen fibres bacilli cocci frequently spore like bodies and occasionally articles of mycelium In some cases I have grown *Candida* and *Torulopsis* fungi and in several cases in which the incrustation was black or greenish black I have isolated *Aspergillus* and *Penicillium* The starting point of these incrustations is probably an accumulation of woollen fibres which become caked owing to the secretions of the skin there is then a bacterial and mycotic invasion and the peculiar incrustations are formed The condition is quite easily differentiated from the crusts found in eczema and eczematoid dermatitis which are yellow and soft

SANDAL STRING VERRUCOID DERMATOSIS

In North Africa in Europeans wearing sandals and in natives it is not rare to see a peculiar linear or ovaloid patch on the region between the first and second toe and lower portion of the dorsum of the foot presenting a verrucoid greyish or brownish surface which is usually non pruriginous and seldom tender and quite different in appearance from an ordinary callosity This condition which often nonplusses the medical man just arrived in Africa is due to the chronic irritation caused by the small cord or thin thong which passes through the first and second toes and keeps the sandal in place

BROMIDROSIS FAECALOIDES

(Hyperidrosis with faecal odour)

Bromidrosis or sweat with unpleasant odour is frequently observed in the tropics and not rarely in the temperate zone especially in summer I should like to call attention to a peculiar type cases of which I have seen in Ceylon the Balkans and Central America viz the type with faecal odour Although the patient may be extremely clean and bathe two or three times a day he exhales with his perspiration a faecal odour and any room in which he may have been for more than a few minutes has the same odour and becomes uninhabitable In this connection I may quote portions of

a letter I received some years ago from a colleague in Jamaica asking whether I could suggest anything for his son a very intelligent boy who had been kept away from school « the odour of his body is of a disgusting faecal nature The odour permeates his clothes and the room in which he lives although the doors and windows are always kept open He bathes twice a day» The letter after stating that no treatment had been of any avail ended «I am frightfully distracted and feel sad at the future of such a bright boy»

The treatment I have found best in these cases is the adminis tration of salol and calomel kerol capsules and hexamine in addition permanganate baths and the use of menthol or carbolic soaps I may add that in the case of the Jamaica boy I suggested kerol and hexamine and after a few months I received a letter from his father to the effect that the treatment had been successful

MALNUTRITION HYPERTRICHOSIS OF THE LANUGO HAIR OF THE LEGS

This condition described by me (British Med Jour August 2 1947 pag 188) generally affects the lanugo hair of the legs espec ially the extensor surfaces The hair becomes much thicker and longer and at times darker It is often seen in times of war in children who have been placed suddenly for reasons of necessity on an insufficient diet particularly poor in animal proteins and fat On giving the children again a proper diet the condition rapidly ameliorates and finally disappears

It is interesting to note that the condition is well known to women of the working classes in the South of Europe A woman who for reasons of work or for some other reason has put her children in charge of neighbours or relations will often complain on her return home that the children have not been well looked after and have been starved «as shown by the thick hair on the children s shins»

Malnutrition may cause a depigmentation of the hair of the scalp in negro children as seen in the disease known as Kwashioko

SYMMETRICAL LANUGO HAIR ALOPECIA

Symmetrical roundish or oval patches of lanugo alopecia seen in both arms both sides of the chest and abdomen both l The patches are smooth with no signs of inflammation they are painful nor tender nor pruriginous The causation is unknown It been suggested that it is alopecia areata of the lanugo hair but my cases no patches of alopecia areata were present on the sc or the region of the beard

SUMMER HYPERTRICHOSIS OF THE LANUGO HAIR

In some individuals the lanugo hair of exposed parts especiall on the forearms may get thicker and longer during the summe months The condition seems to be more common in fair haire individuals

WINTER HYPERTRICHOSIS OF THE LANUGO HAIR

In a few individuals hypertricosis of the arms and legs has been observed in the winter months

CHEILITIS CRUSTOSA EPIDEMICA

During the Ethiopian War (1935 1936) a number of soldiers suffered from a peculiar cheilitis which although not preventing their attending to their usual duties caused them a great deal of discomfort and annoyance

It was especially common in troops after long marches on dusty roads The dust irritates the lips and minute cracks appear and soon the lower lip shows a diffuse moist surface the secretion of which dries up in thick rupoíd crusts In this stage pyococci are always present The patient suffers great discomfort in eating talking and there may be salivation

The condition lasts for several weeks To prevent it the soldiers used to protect their mouths and lips with a large handkerchief which they tied up at the back of the neck

The treatment consists in applying boric solution (2 %) followed by a weak salicylic ointment (½ 1 %)

To prevent the condition anointing the lips with ol theobrom atis or glycerine or boric vaseline is useful

A complete description of the disease may be found in my Manual of the Diseases of Africa (Malattie del Africa Roma 1947)

PITYRIASIS LINGUÆ SPIROCHÆTICA

This condition has been described by me (Castellani & Chalmers Manual of Tropical Medicine 1919)

There is as a rule no sign of inflammation and no ulcers but the dorsum of the tongue is covered by a thick persistent whitish yellowish or greyish brownish fur which on microscopical examination seems to consist solely of innumerable spirochaetes with some epithelial cells Of course a few spirochaetes are always found in scrapings from the tongue but never in such enormous amounts

PIGMENTATIONS OF THE TONGUE

Various pigmentations of the tongue are common in the tropics and as a matter of fact also in the Temperate zone They may be separated into (a) congenital (b) acquired Those of the second type may be distinguished in practice into the following groups (1) Pigmentations usually evanescent or temporary due to certain foods (oranges chocolate etc) to chewing tobacco and over smoking (tobacco brown tongue) to chewing betel (betel red tongue Ceylon red tongue *vide infra*) to medicines containg iron to the use of certain dental preparations and local disinfectants (2) Pathological pigmentations which may be of known origin — e g mycotic pigmentation — or of unknown origin

LINGUA NIGRA (BLACK TONGUE)

On the dorsum of the tongue especially in the posterior portion one or several black blackish blue or brown blackish patches are seen consisting of hair like epithelial filaments or projections of from 1/6 to 1/12 inch in length The condition is due to overgrowth of the papillae which are enlarged and elongated it is in fact a hyperkeratosis and elongation of the papillae (hairy black tongue) In some cases however the patches are fairly smooth and the hair-like processes are not seen (smooth black tongue)

The condition is persistent but after some months or a year or two it has a tendency to disappear spontaneously Three aetiological types of Lingua Nigra may be distinguished (a) the bacterial type (lingua nigra bacterica) (b) the mycotic type (lingua nigra mycot ica) (c) the non bacterial non mycotic type (lingua nigra abacterica et amycotica or simply lingua nigra amycotica) In the bacterial type described by me pigment producing bacteria are found in scrapings from the affected parts among which frequently a Gram positive sporogenous bacillus of the *Bacillus subtilis* type which produces a dark brown pigmentation in certain media such as glucose agar and potato In the mycotic type fungi producing a dark brown or black pigment — actinomyces and other fungi — grow on the elongated and keratinized papillae making them appear black In the abacterial amycotic type no pigment producing fungi or bacteria are found In cases of carcinoma of the mouth and of the stomach a black pigmentation apparently of this latter type is occasionally seen

In several severe cases of lingua nigra in New Orleans and later in England I found a spore forming Gram positive non acid fast bacillus of the *B subtilis* type It grows well on the ordinary laboratory media On glucose agar the colonies are smooth or somewhat granular and rather dry they have a brown dark brown or black pigmentation especially marked at the periphery On potato the whole growth may be black or portions may be brownish, and others black the surface is often covered with a whitish «duvet» as is the case with certain fungi Gelatine and serum are liquified rapidly No gas fermentation in any sugar and other carbohydrates Acidity produced in glucose levulose maltose saccharose salicin no acidity in lactose mannitol rhamnose xylose It is not pathogenic to the usual laboratory animals This organism belongs to the aerobic spore bearing bacilli of the usual laboratory animals This organism belongs to the aerobic spore bearing

bacilli of the *B a th ac s B subtil s B mesentericus* group I cons de ed t to be a type o var ety of *B subtilis (B s bt l s* var *n gro l nguae)* It may possibly be ident cal to *B mesentericus niger*

Thompson and Montgomery and other observers have isolated various fungi of the genus *Act omy es* Seve al observers have descr bed yeast l ke fungi We dmann found in a case an *Actinomyces* which he dent f ed with *Act nomyces m nutissimus* The pat ent a diabetic was suffer ng from e ythrasma

Accord ng to Prin in cases of l ngua n g a abacter ca amycotica the pigme t conta ns iron and s produced by a chem cal reaction between the heamoglobin in the blood and certa n sulphur and ammon a compounds derived from the decom pos t on of p ote n debris or tobacco

Treatment — The local application of hydrogen peroxide or with care of an alcoholic solution of salicylic acid (2 per cent) after scraping is useful

A simple method which is often successful is to soak the black hairy patches with pure hydrogen peroxide and to clean off the parts by means of a soft dental brush afterwards treating the whole dorsum of the tongue with 10 per cent argyrol Some authorities recommend rubbing the silver nitrate stick well into the black area superficial sloughing follows in a few days and generally there is no recurrence

CONGENITAL BLACK TONGUE

Dark or black patches are often seen on the tongue of individuals of Coloured Races and until fairly recently they were believed to be by many tropical practitioners a sign of ancylostomiasis These are deeply pigmented smooth non elevated patches roundish or oval and may be found also on the gums on the mucosa of the lips and on the soft and hard palates In my experience they are not in any way connected with ancylostomiasis and are congenital They do not disappear after the patient has got rid of the ancylostoma infestation

LINGUA RUBRA MYCOTICA

This is a very rare condition a typical case of which was put on record by Ruth Stone Alvares in 1926 On the dorsum of the tongue a patch is seen with the appearance of a «crop of red grass» which

can be easily removed by scraping The patch consists of numerous red filiform bodies which are in reality elongated tissue fibres — they are considered by most authorities to be the elongated and hypertrophied filiform papillae — on the surface of which a red pigment producing fungus grows abundantly Alvares described the fungus found in her case as a *Torula* — not *sensu Langeron* but as a synonym for *Torulopsis (Cryptococcus)* — which grew on artificial media producing red colonies and did not acidify or gas ferment any sugar I have come across a similar case in North Africa the fungus appeared to be a strain of *Torulopsis pararosea (Cryptococcus pararoseus = Monilia pararosea = Candida pararosea = Rhodotorula mucilaginosa* var *pararosea)*

PURPLE TONGUE OF CEYLON

The newly arrived European medical man is not rarely puzzled by the bright purple colour of the tongue when he examines patients of the popular classes in Ceylon and many other countries in the Far East

The pigmentation is simply due to their habit of chewing betel and slowly disappears when the habit is discontinued

Betel is a mixture of the leaves of *Chavica betle* (piper betel) with slices of the nut of *Areca oberacea* (Pinang or areca nut palm) and lime Betel stimulates the salivary glands and it is said those of the digestive organs It diminishes the perspiration The irritation may be the cause of the commonest cancer of old people in these parts

SUMMARY

At the request of many colleagues and students the Author gives once more short descriptions of a number of little known tropical diseases most of them investigated by himself adding the results of recent etiological clinical and therapeutic researches on the subject Among the internal diseases and syndromes discussed are among others Entero-rheumatic fever Febrile Hepato Splenomegaly with arthritis Polyphlebitis Tropicalis Febris columbensis Febricula asiatica Non specific insect fever Non malarial Quartan fever Febris Plurindiem Endemic Funiculitis Pseudo surgical Syndromes of malarial and amoebic origin Bacterial Foetor oris etc

Numerous l ttle known and new skin diseases are described among which Lipoathrophia albumosurica De matosis papulosa nigra Keratoma plantare sulc atum Copra itch Bacterial pseudom cosis Acrodermatitis vesiculosa tropica Microv es culosis Sparsa cutis glabrae Luetic pseudo cysticercosis F ssura lab al s mediana Aclados s Paracladios s T nea nigra Cryptococcosis Epide mica Tinea tenuis Pse do act nomycosis Spi och et ca Ulcus intedig tal s Ulcus Tropicalo des Macr o lcus pe stans Paron ch a act nomycet ca *vel* nocard aca

RESUMO

O A ap e nta uma b ev descr ç o de mu tas doenças tropicais pouco conhe cidas com os esultados de recentes pesquisas sobre o assunto etiologicas cl nicas e te apêut cas

Entre o t as s doenças e s ndromas discutidos são a febre entero-reumatica Febrícula a atica Febre n o e pe f cı por nsectos Febre quarta não malárica h pato-esplenomegal a feb l com a t ite Pol fleb t tropical Febre columbense Funical te endemica S nd omas malaricos e amibianos pseudo-cirurgicos etc Alem destas n imerosas afecçõ s cutâne s sao tambem desc itas

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For the readers convenience a complete list of all these diseases and syndromes is given below each disease being followed by the number of the page where it has been described

Eden Œdema (p 1892) Alkaligenes Parenteric (1916) Animal Bites (1992) Ankylostom asis Low Fev (1910) Append cular Syndrome of Amoeb c Origin (1989) Append cul Syndrome of M la l O igin (1988) Aspecific Insect Fever (1906) Aspec f c Mosqu to Fever (1907) Aspecif c Pappataci Feve (1906) Bacte al Pseudomyco es (2013) Bacterial Foetor Oris (1933) Bacte um Alkaligenes Fever (1916) Bacte ium As aticum Fever (1915) Bacterium Asiaticum Parenter c (1915) Bezo r (1989) B g o (1927) Black Mycotic U ethrit s (1970) B onchomycoses (1952) Bro cho-Spirochaetos s (1941) Brown Thrush (1926) Cacophoria Tropi calis (1895) Castellani s Pyos s (2008) Cat Tongue Gloss tis (1921) Climatic Low Fever (1903) Columbens s Fever (1913) Cystit s Metady enterica (1973) Derma titis Cup l form s (2008) Doederlein Bacillus Stomatitis (1927) Elephantiasis nostras (2117) Emet ne Impact Delayed Pain (1980) Endemic Funicul tis (1934) Endem c Hyperpl sia of the Parotid (1929) Endemic Parotid Enl rgement (1929) Ente o R umat c Fev (1916) F m ne D arrho a (1950) Feb cula Amoebica (1901) Feb icula Climatica (1903) Febrile Hep tospl nomeg ly of Ad lts w th Arthritis (1947) Febris Aest val s Thrombopleocytemica (1908) Febris Metady s nterica (1918) F b is Pl r nd ism (1909) Foehn (1897) Foll cul r Tons llomy

cosis (1935) Galactosuria (1978) Ghibli Syndrome (1896) Harmattan Syndrome (1896) Heat Œdema (1892) Insect Fever (1906) Khamsin (1897) Lactosuria in the Tropics (1975) Land Wind (1897) Langde Chat Glossitis (1921) Lepothrix Stomatitis (1926) Lepothrix Thrush (1926) Leukokeratosis Lingualis Hypertro (1924) Lingua Nigra (2178) Little Known Tropical Dyspepsias and Diarrhoeas (1942) Little Known Tropical Surgical Diseases and Syndromes (1984) Low Amoebic Fever (1901) Macroglossia Mycotica Candidiaca (1932) Malignant Membranous Stomatitis (1922) Malignant Tumour Syndrome of Amoebic Origin (1989) Maltosuria 1977) Metadysenteric Cystitis (1973) Micrococcus Myceticus Pseudoactinomycosis (2015) Micrococcus Myceticus Pseudomycosis (2015) Microvesiculosis Sparsa Cutis Glabrae (2012) Moonstroke (1899) Morbus Boreae (1896) Motor Bicycle Rider s Abdomen (1943) Mycotic Urethritis with Whitish and Yellowish Discharge (1969) Mycotic Vaginitis (1971) Mycotic Vaginitis with Black Discharge (1973) Mycotic Vaginitis with Red Discharge (1973) Mycotic Vulvovaginitis (1972) Non Malarial Quartan Fever (1899) Ocular Emetine Contact Syndrome (1980) Otomycosis (1982) Panperos (1897) Paronichia actinomycetica (2072) Pentosuria (1979) Pes Dolorosus (1894) Polyphlebitis Tropicalis (1943) Pseudo Framboesia (2008) Purple tongue of Ceylon (2180) Pyoderma Cupoliforme (2008) Pyoderma Nodulare Tropicale (2008) Pyosis Follicularis Crurum (2011) Pyosis Mansoni (2006) Pyosis Nodularis Tropica (2008) Pyosis Nodulo Crustosa Tropicalis (2008) Recurrent Parotitis (1931) Red Mycotic Urethritis (1970) Red Sea Œdema (1892) Rhynomycosis (1983) Rome Garden s Fever (1908) Sand Storms (1898) Stomatitis Cryptococco Bacillaris (1920) Stomatitis Erythematosa Guttata Pruriginosa (1926) Stomatitis Membranacea Maligna (1922) Stomatitis Mycotica Fusca (1926) Sudan Œdema of the Eyelid (1981) Symmetrical Ear Nodules (1983) Tea Tasters Cough (1940) Tonsilloblastomycosis Follicularis Pro Parte (1935) Tonsillocandidiasis Pro Parte (1935) Tonsillomoniliasis (1935) Tonsillooidiomycosis (1939) Tonsillooidiosis Follicularis (1935) Tonsillomycoses (1934) Tonsillomycosis Diphtheria Similis (1936) Tonsillomycosis Follicularis (1935) Tonsillomycosis Fusca (1940) Tonsillomycosis Membranacea (1936) Tonsillomycosis Spiculata (1939) Tonsillomycosis Spinulosa (1939) Toxoplasmosis (1911) Traumatic Pappataci Fever (1906) Tropical Abdomen (1942) Tropical Colon (1942) Tropical Impetigo Bockharti (2011) Tropical Non Specific Intermittent Fever of Children (1905) Tropical Pyodermata (2005) Tropical Tummy (1942) «Ulcers of the leg» (2018) Ulcus Oris Perstans (1925) Urethromycoses (1969)